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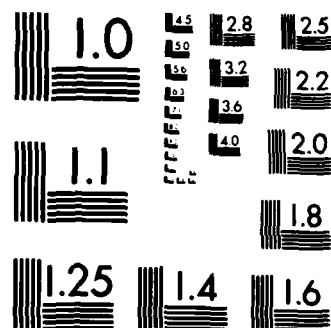
NHRC (NAVAL HEALTH RESEARCH CENTER) REPORT 1982(U)  
NAVAL HEALTH RESEARCH CENTER SAN DIEGO CA 1982

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# NHRC REPORT



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**NAVAL HEALTH RESEARCH CENTER**

P. O. BOX 85122  
SAN DIEGO, CALIFORNIA 92138

NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND  
BETHESDA, MARYLAND

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# Organization

OFFICE OF THE COMMANDING OFFICER



J. E. LANG  
Captain, MC, USN  
Commanding Officer



D. E. WOOD  
Commander, MSC, USN  
Executive Officer



D. E. WHITE  
Lieutenant Commander, MSC, USN  
Administrative Officer

From The Commanding Officer...

Since the last annual report, there have been no changes in External Organizations and Command Relationships or the NHRC Organization Manual. Our Mission and Functions has been updated as described on page 3. The Health Care Systems Department has become the Health Psychology Department as reflected on the Organization Chart page 5, and the Chief Petty Officer of the Command Office is now being filled by a Senior Chief. This past year's scientific activities are reflected in the Chief Scientist's report and in the departmental reviews, pages 8 and 10 respectively.

*Activities of the Commanding Officer*

Attended the Surgeon General's Commanding Officers Conference held May 2-7, and the Naval Medical Research & Development Command's (NMRDC) Commanding Officers meeting that followed.

In March, Captain Kelly, NMRDC Commanding Officer, appointed Captain Lang to serve as the U.S. Navy leader for the Joint Technology Coordinating Group for Combat Casualty Care Subgroup on Medical Material.

In August, RADM L. S. Kolmorgen, USN, Chief of Naval Research, Arlington, Virginia, invited Captain Lang to be a member of the Board of Visitors for the Naval Biosciences Laboratory (NBL) in Oakland, California. The Board will conduct a yearly site visit to NBL to: study the quality of research programs; determine the adequacy of facilities; and, to recommend future research directions appropriate to facilities and scientific staff.

*Personnel*

On 7 May, the Navy Consolidated Civilian Personnel Office (CPPO) closed, with our civilian personnel activities being transferred to the Civilian Personnel Office

at the Naval Regional Medical Center. CCPO, at its peak, provided services to over 6,000 Navy employees and was housed in Bldg 16 aboard the Naval Station.

Civilian and military retirements, advancements, letters of commendation, etc., again expanded greatly over the past year and are outlined beginning on page 57; and Welcome/Farewell on page 6.

#### *Clerkship Program & Reservists*

We had three Naval Reservists assigned for ACDUTRA: CDR Sally Cowles, MC, USNR, from Houston, Texas, 10-21 May; CDR James W. Allen, MC, USNR, from River Edge, New Jersey, for 18 days in May and 35 days in December; and LCDR Harold W. Ward, Jr., MC, USNR, San Diego, 18-29 October.

#### *Postdoctoral and Senior Research Awards*

Two students were awarded a Postdoctoral Research Associateship from the National Research Council and reported aboard 1 October: Dr. Lawrence Palinkas was assigned to the Environmental Medicine Department, and Dr. Sharee Pepper to the Environmental Physiology Department, NTC Office. Dr. Michael Kalichman, assigned to the Clinical Psychophysiology Department, on 30 September, finished a two-year Postdoc assignment.

Our monthly scientific Colloquiums featuring presentations by distinguished visiting scientists and command staff are summarized on pages 55-56.

#### *Location*

NHRC is located on Point Loma in San Diego and occupies, in tenant status, six of the Naval Ocean Systems Center's "barracks" buildings, and spaces at the Naval Hospital and Naval Training Center, as follows: (Phone numbers are also provided to assist anyone wanting to contact a department)

	AV 933-ext.
Bldg 306 (top deck) Office of the Commanding Officer	225-2911
Administrative Services Department	
(bottom ") Walter L. Wilkins Biomedical Library	225-6640
Bldg 309 Research Support Department (Code 90)	225-2005
Bldg 331 Biological Sciences Department (Code 70)	225-2071
Bldg 332 Environmental Medicine Department (Code 30)	225-2061
Bldg 346 (top deck) Environmental Physiology Department (Code 60)	
(Main Offices)	225-7393
(bottom ") Health Psychology Department (Code 40)	225-7395
Bldg 315 Performance Enhancement Program of Code 60	225-6671
NTC Bldg 272, Physical Fitness Program of Code 60	225-4308/4379
NavHosp 36-4, Clinical Psychophysiology Department (Code 50)	233-2481
	AV 957-2481

  
J. E. LANG

MISSION AND FUNCTIONS OF THE  
NAVAL HEALTH RESEARCH CENTER, SAN DIEGO\*\*

MISSION

To support Fleet Operational readiness through research, development, test, and evaluation on the biomedical and psychological aspects of Navy and Marine Corps personnel health and performance; and to perform such other functions or tasks as may be directed by the Chief, Bureau of Medicine and Surgery.

FUNCTIONS

As directed by the Chief, Bureau of Medicine and Surgery and exercised through the Commanding Officer, Naval Medical Research and Development Command:

- a. Conduct occupational health and safety studies in the naval service to: identify environmental hazards in the work place and aboard ship; assess the impact of potentially harmful agents or conditions on health and performance; determine causal factors in illness and accidents; and, to develop cost-effective intervention strategies.
- b. Maintain data files of medical and service history information for all naval personnel to: serve as the basis for longitudinal health studies on morbidity, disability, and mortality in relation to demographic, occupational, environmental, psychological, and service history variables; identify health and safety risks to naval personnel; and, to assess the impact of chronic disease on performance and retention.
- c. Conduct studies on the unique psychological, physiological, and environmental stresses which place demands on performance and biochemical homeostasis of Navy and Marine Corps personnel in operational environments; identify the physical, mental, and emotional requirements for maintenance and/or enhancement of performance during sustained military operations; and, develop supportive programs for augmentation, restoration, and maintenance of physical fitness to enhance military job performance.
- d. Conduct research to quantify the physiological and performance effects of occupational/environmental conditions, pharmacological agents, and certain clinical entities which may enhance or impair health and performance in operational settings.
- e. Conduct studies on the epidemiology, rapid diagnosis, prevention, and control of infectious agents that adversely impact upon the health and performance of naval service personnel.
- f. Conduct studies of naval health care facilities as complex organizations which must coordinate activities of professional and support personnel to provide health care and assess influences on the cost, quality and effectiveness of health care provision in shipboard and shore facilities; develop information systems relating to Navy medical health care provision for management, clinical and research purposes.

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\*\* BUMEDINST 5450.64D



Mission and Functions, cont.

g. Develop biomedical engineering systems to: improve performance and physical fitness among naval service personnel; augment the quality of health care onboard ship and within naval shore facilities; and, enhance casualty assistance and medical records management procedures in combat operations.

h. Provide effective liaison between Navy medical research and development efforts and WESTPAC fleet/Marine Corps activities.

\* \* \* \* \*

STANDING BOARDS AND COMMITTEES

Functional statements for Boards and Committees are contained in directives which establish these bodies. All proceedings shall be made a matter of official record and submitted to the Commanding Officer.

Position Management Board

To emphasize the objectives, establish responsibilities, procedures, reporting requirements for position management.

Committee for the Protection of Human Subjects

Reviews all research proposals submitted by the command involving human subjects to determine that the risk to the subject is so outweighed by the sum of the benefits to allow the subject to accept these risks. Ensures that the rights and welfare of any such subject will be adequately protected.

Safety Committee

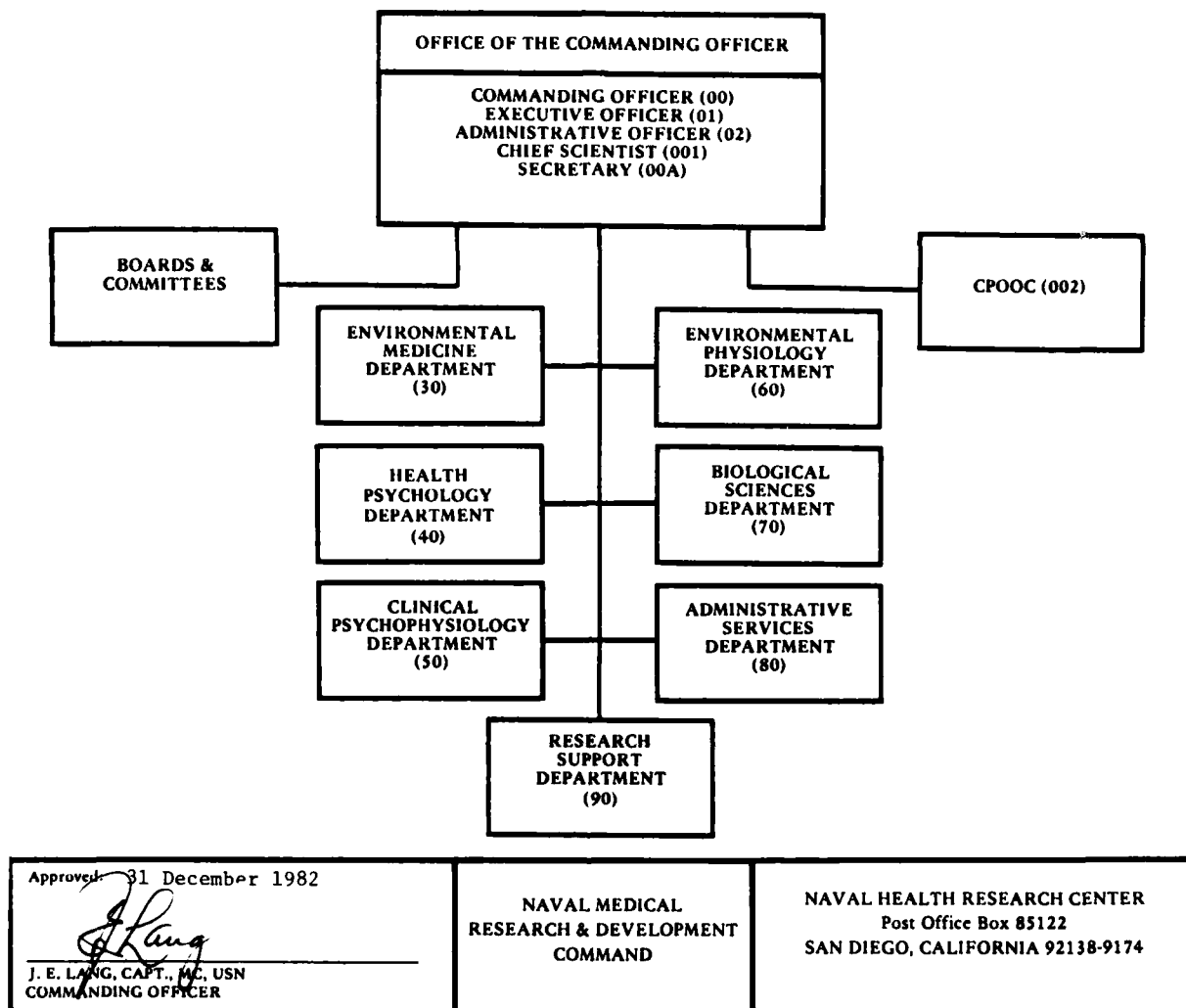
Conducts inspections for hazardous working conditions or materials and advises the CO on command safety matters.

Scientific Planning and Review Council

Advises and recommends to the CO on all scientific aspects including old, new, and projected scientific programs, as well as advising on all factors affecting the accomplishment of scientific goals.

ADP Committee

Reviews requests for ADP hardware and software. Evaluates the ADP needs of the Center to ensure efficiency of operations and prevent duplications.



WELCOME ABOARD to

FAREWELL to

Environmental Medicine Department

Dr. Frank Garland, Statistician,  
9 February

CDR Brian G. McCaughey, MC/USN,  
19 July

Ralph Burr, Psychology Tech,  
3 November

Dr. Lawrence Palinkas, NRC Post-  
doctoral Student, 1 October

Jean Beck, Computer Specialist,  
Resigned, 16 July

Health Psychology Department

Richard Booth, Psychology Tech,  
8 September

LT Thomas F. Hilton, MSC/USN,  
1 November

Dorothy Benson, retired, 28 May

Michael Gorney, transferred, 28 May

Clinical Psychophysiology Department

Dr. Michael Kalichman, NRC Post-  
doctoral student, 30 September

Environmental Physiology Department

HM3 James Bucci, Jr., 8 January

Dr. Sharee Pepper, NRC Postdoctoral  
Student, 1 October

HM2 David Whitney, 18 October

CDR David Hall, MSC/USN, retired  
31 October

HN Nancy Gillet, released from  
Active Duty, 2 July

Biological Sciences Department

Patricia Yelenosky, Chemist,  
25 January

LCDR Dennis P. Nelson, MSC/USN,  
7 October

HM1 William Spatz, 1 November

HM3 Carlos Bryant, transferred,  
21 June

CDR Warren R. Sanborn, MSC/USN,  
retired 30 June

LCDR Richard E. Struempfer, MSC/USN,  
transferred 17 August

Administrative Services Department

HM3 Sandra Weber, 1 January

Janie Banks, Personnel Assistant,  
3 May

HMC Robert J. Eveland, 21 June

Christine Chappell, Clerk-Typist,  
11 October

Berlinda Lopez, Personnel Assistant,  
13 December

HMC Dennis Schieffer, transferred,  
19 February

Gerald Bridge, retired, 19 March

Peggy Nelson, Supply Clerk, trans-  
ferred, 31 July

Gloria Heck, Clerk-Typist, trans-  
ferred 13 August

Janie Banks, transferred, 19 Nov-  
ember

Research Support Department

Donald Beck, Computer Specialist,  
Resigned, 1 August

# PERSONNEL

(As of 31 December 1982)

MILITARY PERSONNEL		CIVILIAN PERSONNEL	
<u>Medical Corps</u>		<u>Grade</u>	<u>Number</u>
Captain		SES	2
Internist (Hematologist)	1	GS-14	2
Commanders			
Internist (Infectious Disease)	1	GS-13	4
Psychiatrist/Psychologist	1	GS-12	9
Lieutenant Commander			
Internist	1	GS-11	7
		GS-9	15
<u>Medical Service Corps</u>		GS-7	4
Commanders			
Microbiologist	1	GS-6	6
Research Psychologist	1	GS-5	6
Lieutenant Commanders			
Aerospace Psychologist	1	GS-4	3
Biochemist	1		
Research Psychologist	1	WG-5	1
Microbiologist	1		
Health Care Administrator	1		
		Total	59
Lieutenants			
Clinical Psychologist	1		
Research Psychologist	2		
Physiologist	1		
	15		
<u>Enlisted</u>			
E-8	0000/8404	1	
E-7	8425/8401	1	
	8506/8404	1	
E-6	8506/8404	4	
E-5	8506/0000	1	
	0000/0000	1	
	8454/0000	1	
E-4	8454/0000	1	
	0000/0000	3	
		14	
Total		29	

There are several officers with additional duty to NHRC to serve on the Committee for the Protection of Human Subjects. They include one each of:

Captain - Medical Corps, USN  
 Commander - Chaplain Corps, USN  
 Lieutenant - Judge Adv. Gen. al Corps, USNR

# SCIENTIFIC ACTIVITIES



Laverne C. Johnson, Ph.D.  
Chief Scientist

#### CHIEF SCIENTIST'S REPORT

Over the past two years, with the support of our Program Managers, there has been a shift away from the submission of discrete research proposals (1498s) which dealt with fragmented parts of larger programs. The focus now is on 1498s that involve larger research programs, the subparts of which would previously have involved two or three separate 1498s. The success of our efforts is reflected in the

fact that in 1980, there were 29 1498s approved. In 1982, we have 18 1498s. During this period, our staff has remained relatively constant and our funding level has increased. The reduction in 1498s has reduced the time spent in preparation and review, but, more important, it has resulted in more integrated research efforts not only within departments but also between department.

Research at NHRC can be placed into four areas: 1) performance enhancement, 2) occupational and environmental health, 3) rapid identification of infectious diseases, and 4) health psychology. The latter is also the name of a new department.

Health Psychology is a broad based discipline that is rapidly expanding in the civilian sector. At NHRC, this department will include the professional and support staff with interest and expertise in preventive aspects of health care, and insocial and organizational psychology. Research in this new department will focus on the broad problem of compliance with an initial effort in identifying the factors involved in failure to comply with operational guidelines for cold weather operations. Many cold weather casualties are the result of failure to follow well-documented cold weather instructions. Individual compliance will also be a major factor in the success of the new health and physical readiness program as outlined in OPNAV INSTRUCTION 6110.1B dated 19 October 1982. Health Psychology staff, plus staff from the Physical Fitness Program and Environmental Medicine, have submitted a proposal to work with members of the Naval Military Personnel Command, Human Resources Office, to evaluate the impact and effectiveness of this OPNAV Instruction in enhancing attitudes toward fitness, modifying life styles, and reducing body fat. Studies on the effect of organizational factors on health care delivery and utilization of personnel in health care facilities will continue as part of the Health Psychology research program.

Performance Enhancement, in a broad sense, is a major goal of all NHRC research. In a more restricted focus, the Performance Enhancement research program involves

research being carried out in the Clinical Psychophysiology and Environmental Physiology Departments, and presently involves basic (6.1) as well as 6.2 exploratory and 6.3 developmental efforts. The basic research is in the area of behavioral pharmacology. Past and current research has evaluated hypnotics with the objective of finding an effective sleep inducing agent with no "hangover" effects. Triazolam and L-tryptophan have met initial laboratory objectives and plans are being made to evaluate their effectiveness in nonlaboratory environments. The combination of electrophysiological, autonomic, and performance data used in the hypnotic studies can be used as a model for evaluating the physiological and behavioral effects of other pharmacological agents. Plans are underway to evaluate the feasibility of stimulant drugs to sustain performance.

The basic 6.1 findings will be incorporated in the 6.2 and follow on 6.3 development and application work efforts. The current 6.2 efforts are concerned with the optimization of work/rest schedules for performance enhancement, with particular attention to the interaction of work load with sleep loss and time-of-day effects. Data on the minimal amount of sleep, and at what times, are required to minimize performance decrement in sustained operations.

As noted earlier, the penalties for obesity and the benefits resulting from being physically fit have led to increased interest and research in weight reduction and physical fitness programs. Our current research efforts are evaluating the impact of the new percent body fat standards. Initial results indicate that 15.8 percent of all naval personnel will not meet the new standards. In the over 35 age group, 32 percent are estimated to have a percent body fat over the 22 percent standard. Data are also being obtained for a percent body fat equation based on circumference measures from Navy men and women. The evaluation of the effectiveness of a physical fitness program that included both aerobic and muscle strength components is underway for male and female recruits.

Occupational and Environmental Health research is primarily conducted by members of the Environmental Medicine Department. This research program is extensively involved in the developing of computer-based data management systems to monitor and collate occupational health data. The Naval Occupational Health Information Monitoring System (NOHIMS) is a prime example. Analyses of these types of data demand epidemiological skills and knowledge, and professional staff in this area have been added. An epidemiological study of prevalence of low white blood cell count at a Naval Weapons Center is now in its second year. With the expertise and effective use of the complete Navy Personnel History and Hospitalization records, this Department's research program continues to track the health risks of occupations, with special attention now being given to divers and aviators. To supplement the psychiatric hospitalization data, a computerized outpatient mental health data base is being developed as a model for possible Navy-wide use.

During this past year, the Army was given responsibility for all Defense Department infectious disease research. The unique contributions of our Biological Sciences Department's rapid identification research was readily apparent in an overall review of infectious disease research. If the current plans are carried out, the unification of infectious disease research will lead to more effective communication among Army

and Navy laboratories. The focus of NHRC's research efforts will move toward field evaluation of both in-house laboratory developed as well as commercially available rapid diagnostic techniques.

The above is a general overview of our four major research programs. Each Department Head will briefly summarize the work of his/her department.

\* \* \* \* \*



D. Stephen Nice, Ph.D.  
Department Head

HEALTH  
PSYCHOLOGY  
DEPARTMENT

During the past two years, the Health Psychology Department has investigated the effects of social and organizational factors on health care delivery in Navy outpatient settings. These studies of both health care providers and patients have focused on: a) organizational factors which facilitate the delivery of outpatient services and promote positive patient reactions to care, and b) on relationships between individual characteristics, job type, and career development among military health professionals. This continuing effort will explore issues concerning effective utilization of skills, satisfaction, and turnover decision-making in multiple treatment settings.

In response to a request from the Surgeon General, the Health Psychology Department developed a program to document the prevalence and nature of shipboard medical communications and evacuations. In addition, this nine-month survey of all U.S. Navy and Military Sealift Command ships was designed to assess the need for telecommunications equipment to provide a remote diagnosis capability to the fleet.

A new research effort has been initiated to enhance performance in the cold by identifying and testing means of increasing compliance with preventive health behaviors. This multi-year project will employ direct observation procedures in controlled field studies to determine the extent of noncompliance with recommended cold weather procedures and to assess the effects of noncompliance on health and performance. Later studies will identify factors affecting compliance rates and guide the development of intervention programs to increase compliance.

Future research efforts are being developed to assess the health and physical readiness of Navy personnel and to evaluate the effectiveness of health promotion and physical fitness programs. As these and other research programs mature, the Department will continue to contribute to the emerging field of Health Psychology through the application of sound research methodologies to Navy relevant issues and problems.





CDR Thomas E. Berghage, MSC, USN  
Department Head

ENVIRONMENTAL  
PHYSIOLOGY  
DEPARTMENT

If scientific progress is, as someone has suggested, a result of creative inspiration mixed with a whole lot of perspiration then the Environmental Physiology Department's program has made great strides forward during the past year. New ideas flowed freely and the dedicated staff worked hard to make things happen. Through the cooperative efforts of local Line Commanders, we have been able to conduct research that would be impossible to

accomplish anywhere else in the Navy. Our research laboratory has extended from the arid Arizona desert to the cold, wet mountains of Vancouver, British Columbia; from the open rolling hills of Camp Pendleton to the cramped shipboard spaces available during fleet operations. Our subjects have ranged from super-fit Marine Recon and Navy Special Warfare personnel to new recruits just being introduced to the rigors of military life. Department researchers have tolerated these varied environments extremely well and have returned with data that are not only helpful to the Navy, but are also of immense interest to the scientific community.

The Environmental Physiology Department went through some minor organizational changes this past year to accommodate some personnel losses and program changes. The Department is now organized around two programs: Physical Fitness and Performance Enhancement.

Work in the Physical Fitness Research Program is concentrated in four areas:

- (1) Determination of the physical fitness requirements of Navy jobs;
- (2) Development, testing, and evaluation of physical conditioning programs;
- (3) A survey of male Navy personnel to determine body fat content values among them; and
- (4) Development of improved methods for estimating body fat content among Navy personnel.

We assisted investigators at Navy Personnel Research and Development Center (NPRDC) in data collection (aboard the USS RANGER, CVA-61, and at NAS, Miramar) for analysis of job tasks performed by several aviation rates. Studies were conducted to evaluate two general types of physical conditioning programs: circuit weight training (CWT) and CWT with additional aerobic exercise (SPARTEN; Scientific Program of Aerobic and Resistance Training Exercise in the Navy). Both programs led to increases in overall strength and muscle endurance. In addition, participants in SPARTEN programs showed stamina gains, while participants in CWT maintained their previous stamina levels. A study was begun to evaluate the effects of physical fitness and participation in a SPARTEN program on performance of shipboard tasks. A distribution of body fat content values among all U.S. Navy male personnel was

estimated from neck and abdomen circumference values collected on a representative sample of 967 sailors. From the distribution, it was determined that 15.8% of the male personnel would exceed the newly-imposed 22% body fat standard. Collection of body composition and anthropometric data from approximately 600 male and 200 female Navy personnel was completed. These data will be used to improve the prediction of percent fat for Navy personnel. (see pages 47-53)

In addition, the program acquired a new computer-based data acquisition system and new sophisticated isokinetic dynamometers for muscle strength and muscle endurance measurement. This equipment will be used, in part, for future studies of physiological concomitants of muscle fatigue.

The Performance Enhancement Program under its current reorganization contains four subprograms:

- (1) Sustained Operations (SUSOPS)
- (2) the Tactical Air Combat Training System (TACTS) project
- (3) Bioenergetics of Exercise
- (4) the proposed Visual Evoked Response (VER) program

During the past year, the SUSOPS series of experiments have continued with completion of the SUSOPS II studies and initiation of the SUSOPS III study with a total of 42 subjects. These studies have provided data on the performance limits of Marine Corps volunteers in a controlled laboratory environment under varying conditions of work and rest. The SUSOPS laboratory has enhanced its capabilities by the addition of the MINC-11 computer for data acquisition and the open-circuit spirometry system for exercise studies.

The TACTS project obtained complete performance and physiological data during 8 air-to-air combat training flights. These data were collected from TACTS nonflight data recordings and from the In-flight Physiological Data Acquisition System recordings. The computer software program necessary to analyze these data was completed and the data analysis has been initiated.

The Bioenergetics of Exercise was approved as an IR project. Preliminary plans and arrangements have been completed for the project scheduled to begin in January 1983. Some preliminary computer models have been described, although some have been simulated on the computer.

The VER pilot study is collecting data from subjects involved in the SUSOPS program. This technique is expected to provide a means of assessing specific measures of vigilance or decision-making performance. Preliminary data indicate that discrete changes occur after sleep deprivation and exercise but unique relationships to performance have not been found at this stage.

Additionally, a draft proposal was written describing the U.S. Navy cardiac and medical screening program for a new BUMED instruction. This is intended to interlace with the new OPNAV Instruction 6110.1B on health and physical readiness.



Earl A. Edwards  
Department Head

BIOLOGICAL  
SCIENCES  
DEPARTMENT

Infectious Diseases are the major cause of morbidity for military personnel. The purpose of the research in the Biological Sciences Department is to produce laboratory procedures which rapidly identify the bacterial or viral etiology of an infectious disease directly from sputum, urine, blood, spinal fluid, a wound or other clinical specimens. These rapid diagnostic procedures are adapted or designed for use on board a ship or during field deployment where

standard laboratory techniques are not possible. They must be sensitive and specific, easy to perform and interpret, highly transportable, and use simple laboratory equipment. These demanding requirements call for a cooperative effort from our five major program areas: Immunobiology, Microbiology, Virology, Clinical Infection and Biochemistry.

The Immunobiology Program has focused on increasing the antigen capture capability of solid carrier support systems. By studying the surface chemistry of polystyrene and nylon balls, several methods of modifying the functional groups on the ball surface have been found which enhance covalent linking of the antibody protein for subsequent antigen capture.

The Microbiology Program has worked with procedures which detect the antigen-antibody reaction. Radioimmunoassay (RIA) is the standard for sensitivity and specificity for rapid detection of an infectious agent, but it is not suitable for use outside a laboratory. Enzyme-linked immunosorbent assay (ELISA) approaches RIA in sensitivity but is still technically complex for field use. Work in the Immunobiology Program may help to simplify the ELISA technique. Coagglutination (COAG) using protein A-containing *Staphylococcus aureus* for the antibody carrier support, latex agglutination and counterimmunoelectrophoresis (CIE) techniques have been field tested and found to be suitably sensitive to detect infectious agents in the field. A portable microbiology laboratory has proven effective for military deployed needs in jungle, desert, and cold weather conditions.

Anaerobic bacteria are a major problem in wound infections. The Microbiology Program has developed a rapid COAG test to identify several species of anaerobes from a culture. Work to adapt this test for use directly from wounds was interrupted with the temporary transfer of personnel to the Navy Drug Screening program.

The Virology Program has worked with adapting monoclonal antibodies to sensitive, rapid diagnostic tests for viral and bacterial detection. Several cloned cell lines are producing specific monoclonal antibodies. A modification of the diffusion in

gel ELISA technique has made it possible to visualize antigen-antibody reaction without instrumentation.

The Clinical Infection Program has directed its efforts to rapid identification of beta-lactamase activity directly from urethral swabs which are Gram stain positive for *N. gonorrhoea*. Determination of bacterial sensitivity or resistance to penicillin at the time of patient diagnosis would allow for curative therapy with certainty. A field trial of several procedures demonstrated there were insufficient organisms on a swab to give definitive results. A two-hour incubation of the swab and antigen concentration with antibody on a solid carrier show promise.

The Biochemistry Program has just recently begun investigating the potential of bioluminescence and chemiluminescence and the role they might play in rapid diagnostic tests for infectious agents in a deployed situation.

\* \* \* \* \*



Cheryl L. Spinweber, Ph.D.  
Deputy Department Head

CLINICAL  
PSYCHOPHYSIOLOGY  
DEPARTMENT

Because of mission demands, Navy personnel are often required to rest in environments which are not at usual bedtimes. Under such conditions, certain individuals may be unable to fall asleep or stay asleep, thus losing an important, and often limited, opportunity for restoration. In addition, as is true of any large population, the Navy has within its ranks people who have chronic sleep problems. Because of these

sleep-related operational considerations, current research in the Clinical Psychophysiology Department focuses on identification of sleeping aids which are appropriate for use in operational settings by Navy personnel.

Our investigations involve recording of all-night sleep EEGs to assess the hypnotic effectiveness of the pharmacological agent in question. Performance data, including reaction time, memory, and cognitive processing, are collected after the morning awakening to determine if the sleeping aid leaves a daytime performance impairment, a drug-induced "hangover". Recently, we devised a methodology for empirically delineating the behavioral time course of action of sleeping aids. This technique involves use of systematic, periodic awakenings of the sleeper at critical times post-administration to collect performance data, determine arousal threshold, and measure latency of return to sleep (Center Report 81-1). Assessment of these behavioral, cognitive, and perceptual changes and describing them both quantitatively and temporally provide a cohesive and detailed picture of the effects associated with use of a specific psychoactive agent.

In the recent past, major studies of the benzodiazepine sleeping pills flurazepam (Dalmane) (Center Reports 78-15, 78-25, 78-28) and the recently marketed triazolam (Halcion) (Center Reports 81-1, 81-2, 81-16) have been conducted. During calendar year 1982, the major portion of our Department's work efforts were directed toward completion of a 2-year study of the amino acid, l-tryptophan, which is available in natural foods as a dietary supplement and has been described as a "natural" sleeping aid. At the present time, our data indicate that both triazolam and l-tryptophan may be suitable for use in operational settings. Both have sleep-promoting effects. In terms of performance measures, using a 0.5 mg dose level, triazolam's "hangover" effects on performance are limited to a 5-hour period post-administration and, in preliminary analysis of the recently collected l-tryptophan data, there appears to be no identifiable performance decrement associated with its use. In chronic poor sleepers, however, l-tryptophan appears to be less effective than triazolam on first and second nights of use.

Although we currently focus our research attention on sleeping aids, the methodology we have developed may be used to evaluate the effects of any drug or toxic agent. Knowledge of how to use pharmacological techniques to optimize human performance in specific settings may be of value to the Navy. Our program, which is most appropriately described as "behavioral psychopharmacology", is geared toward providing the answers to the questions: "which drug and what dose?" and "what effects and when?".

\* \* \* \* \*

#### ENVIRONMENTAL

#### MEDICINE

#### DEPARTMENT

During 1982 major advances were made in several projects. In the study of the epidemiology of low white blood cell counts (LWBCC) among employees at the Naval Weapons Center, China Lake, more than 4,000 blood samples were drawn from participants and preliminary analyses of factors correlated with WBC were conducted by Dr. Frank Garland. Smoking was the factor most highly correlated with WBC, but other factors, particularly work environments, also are being investigated.



E. K. Eric Gunderson, Ph.D.  
Department Head

In the Longitudinal Study of morbidity among naval aviators conducted by Anne Hoiberg, comparisons have been made between pilots and other naval officer groups, and age- and occupation-specific health effects are being evaluated. Similarly, in a large-scale study of Navy divers, unique hazards of the diving environment have been

delineated by examining diving and medical histories over more than a decade. Anne's book, *Women and the World of Work*, has been published by Plenum. Also, Anne received an award for her article "Cancer Among Navy Personnel: Occupational Comparisons" at the 1982 AMSUS meetings held in Orlando.

The relative risk of illness or injury has been determined for 56 Navy occupations and high risk occupations have been identified for more intensive study. Longitudinal studies of accidental injuries directed by LCDR John Ferguson have shown that accident rates are related not only to occupation and age but to other personnel characteristics, such as education level. These studies will contribute to identification and better control of job-related health hazards in naval environments.

Substantial progress was made in development of the Navy Occupational Health Information Monitoring System (NOHIMS), and some of the capabilities of this system were demonstrated at the Navy Occupational Health Workshop in May and at the Armed Forces Epidemiological Board in June. Other applications of this sophisticated software package are planned for Fleet Marine Force support and combat casualty care as well as the Navy Mental Health Information System (NAMHIS). These applications are directed by Bill Pugh and Douglas Kolb/LT Blake Chaffee, respectively.

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WORK FOR SCIENTIFIC JOURNALS

Editorial input by staff members for 1982 include:

Mark C. Butler, LCDR MSC USN

*Journal of Consulting & Clinical Psychology* (Reviewer)  
*Educational & Psychological Measurement* (Reviewer)  
Office of Naval Research (Reviewer)

Earl A. Edwards

*Journal of Clinical Microbiology* (Reviewer)  
*Journal of Infectious Disease* (Reviewer)

Anne Hoiberg

*Armed Forces & Society* (Associate Editor)  
*Psychological Reports* (Associate Editor)

Laverne C. Johnson, Ph.D.

*EEG & Clinical Neurophysiology* (Consulting Editor & Reviewer)  
*Sleep* (Reviewer)  
*Psychopharmacology* (Reviewer)  
Reviewed manuscripts for: *Biological Psychology*, American  
Medical Association, American Institute of Biological Sciences,  
and a Research proposal for the March of Dimes, Birth Defects  
Foundation.

Michael W. Kalichman, Ph.D.

*Pharmacology, Biochemistry & Behavior* (Reviewer)

Cheryl L. Spinweber, Ph.D.

*EEG & Clinical Neurophysiology* (Reviewer)  
*Sleep* (Reviewer)  
*Neuroscience & Biobehavioral Reviews* (Reviewer)

REPORTS COMPLETED IN 1982

- 82-1 GUNDERSON, EKE & C Colcord (MF58524001-0004)  
Health Risks in Naval Occupations: An Overview (Center Publication, AD#A128-137)

Abstract: The purpose of the study was (1) to determine the most common diseases and injuries incurred by naval personnel, (2) to establish Navy-wide base rates or morbidity norms, (3) to examine differences among Navy occupations in overall disease rates, and (4) to compare disease profiles for high-risk occupations in order to identify unique health risks for those occupations.

Archival medical and personnel data for the 1965-1976 period were analyzed to compute cross-sectional annual admission rates. The most common major disease categories were accidental injuries, respiratory diseases, and mental disorders. Occupations at highest risk for disease or injury were the Hospital Corpsman (health care), Boatswain's Mate (boat handling and maintenance), and Steelworker (construction) specialties. A cohort study of 1960-1961 enlistees provided unique disease risk profiles for selected high-risk occupations. For example, Corpsmen incurred high rates of Infection/Parasitic Disease and Mental Disorders while Boiler Technicians had high rates of Circulatory and Nervous System/Sense Organ Disease. The findings will guide more detailed analyses of environmental hazards and job activities in relation to health consequences as a basis for systematic identification and control of job-related health hazards in naval environments.

- 82-2 HORD, DJ (MRO410103-0153)  
An EEG Predictor of Performance Decrement in a Vigilance Task  
(Center Publication; AD# A116-960)

Abstract: Ten subjects took part in a monitoring task in which alpha numeric symbols were discriminated on 110 trials during continuous 3-hour "watches". Each subject completed a 3-hour watch on 3 consecutive days. The reaction times for all trials on day 2 and day 3 were divided into the 10% fastest, 10% slowest, and the errors of omission (EO) for each session. Brain activity at the vertex ( $C_z$ ) was derived from the one-second period preceding each trial. Ensemble spectral analysis was completed for each subject to yield intensity ( $\mu$  volts<sup>2</sup>/Hz) at integral values of frequency from 1 to 20 Hz. It was found that the ratio of slow (1-6 Hz) activity to intermediate (7-12 Hz) EEG activity at the vertex can differentiate EO from fast and slow trials thus supporting the contention that brain activity recorded at the scalp can be used to monitor vigilance level in rested subjects. The technique could be used to monitor vigilance states in operational settings.

- 82-3 HODGDON, JA; HW Goforth, Jr. & RL Hilderbrand (M0099PN004-8050)  
Biochemical Responses of Navy Special Warfare Personnel to Carbohydrate Loading and Physical Performance

Abstract: Selected biochemistries were monitored in 9 Navy Special Warfare personnel during a program of carbohydrate loading (LOAD), during a control, nonloading program (NONLOAD), and during an endurance test subsequent to each program. Each program required 6 days with the endurance test on the 7th. The endurance test consisted of interrupted running (18 min. running/2 min. rest) to voluntary exhaustion on a treadmill at a speed requiring an energy expenditure of about 80% of maximal aerobic capacity. Fasting blood samples were collected each morning of the diet/exercise



programs, and samples were collected prior to, 60 min. into, at the end of, and 60 min. after each endurance test. Blood samples were analyzed for the enzymes creatine phosphokinase (CPK), lactate dehydrogenase (LDH), and 2-hydroxybutyrate dehydrogenase (HBD); sodium; potassium; total protein; albumin; glucose; cortisol; uric acid; and creatinine. In addition, urine samples were checked each day for the presence of ketones. When compared to the NONLOAD results, CPK, LDH, and HBD were all elevated during the LOAD depletion phase, reflecting the greater exercise demands. Blood glucose decreased during depletion and cortisol was elevated as expected with carbohydrate deprivation. During the LOAD repletion phase, CPK, LDH, and HBD values decreased, although only CPK achieved pre-LOAD levels. Uric acid also decreased. All other blood parameters showed no differences between LOAD and NONLOAD. Urine analysis revealed ketouria by the end of LOAD depletion in all participants. In all cases, ketouria was ameliorated by one day of repletion. All biochemical values were increased during the endurance tests except potassium. There appeared to be a slightly greater increase in muscle LDH and in CPK following LOAD, which may have been associated with the longer endurance time following LOAD. In no case did the enzyme values suggest major muscle or cardiovascular damage. HBD was elevated following LOAD, suggesting a lack of long-distance running training in the Special Warfare training program. This HBD elevation was taken to suggest a need to explore further the effects of endurance running in nondistance trained individuals. Additionally, a need is suggested to explore the effects of physical fitness parameters on the effectiveness of ergogenic programs such as LOAD.

82-4 NICE, DS (MF585271C2-0001)  
 The Contribution of Social and Emotional Factors to the Utilization of  
 Navy Outpatient Medical Facilities (Center Publication)

Abstract: During separate two-week periods, medical outpatient visits were monitored at Navy hospitals at a Marine Corps facility (N=853) and a Naval Air Station (N=890). Approximately 23% of all medical outpatient visits were precipitated by social or emotional factors. The patients who made these visits were more likely to be women or older people, were typically diagnosed with mental/nervous conditions or general symptoms, were administered treatments similar to all other patients, received a disposition of resolved less frequently than other patients, and were referred no more frequently than other patients. Implications for the military health care system are discussed.

82-5 VICKERS, RR, Jr.; JA Hodgdon, BL Bennett & RE Poland (M0096PN001-1035)  
 Salivary and Plasma Testosterone and Cortisol during Moderately Heavy Exercise  
 (Center Publication, AD#A122-107)

Abstract: Saliva may provide a useful alternative to blood for measuring steroid hormones. Total plasma and salivary concentrations of cortisol and testosterone were compared in samples taken twice at rest and twice during exercise to determine whether physical activity level affects the relationship between the two. Correlations were consistently high ( $r > .82$ ) for cortisol, but relatively low for testosterone ( $r < .66$ ). Exercise did not affect either correlation. Salivary cortisol is a reasonable alternative to plasma cortisol even during exercise. The testosterone results were equivocal as salivary testosterone could be highly correlated with free

plasma testosterone despite the low correlation to total plasma testosterone. Closer examination of the free/total plasma hormone distinction was not possible in the present study, but should be an important focus for further research on salivary steroids.

82-6 BECK, D & WM Pugh

(M0933PN003-0001)

Specifications for a Navy Occupational Health Information Monitoring System (NOHIMS): II. A Functional Overview  
(Center Publication, AD# A117-489)

Abstract: The content of the personnel, environmental, and medical data bases required by the Navy Occupational Health Information Monitoring System (NOHIMS) being developed at the Naval Health Research Center are described in detail. In addition, the overall design of NOHIMS as well as an overview of the functional specifications are discussed and key features of NOHIMS, such as its "user friendly" nature, transferability, and adaptability to settings that range from a very small activity to a large region are described. Attention is also given to the various users of NOHIMS, and the reports generated for them are reviewed.

82-7 NICE, DS & L Dutton

(MF585241C2-0001)

Active Duty vs. Non-Active Duty use of Navy and Marine Corps Medical Out-patient Services (Center Publication)  
*Military Medicine (in press)*

Abstract: The purpose of the present study was to compare the delivery of outpatient services to active duty and non-active duty beneficiaries within a Navy and a Marine Corps setting. During separate, two-week periods, outpatient information regarding diagnosis, type of provider seen, adjunct services received, and case disposition was collected at Navy hospitals at a Marine Corps facility (N=1,379) and a Navy Air Station (N=1,406). Results indicated substantial differences in the most frequently occurring problems among active duty and non-active duty patients. Moreover, the leading ambulatory problems among active duty patients (e.g., injury and gastrointestinal) required more X-rays and fewer lab tests and, were scheduled for less follow-up, than were the more routine (e.g., pregnancy check-up) and chronic problems (e.g., arthritis, hypertension) of the non-active duty population. Active duty patients were also less likely to see a physician than were non-active duty patients. Implications of these findings are discussed in terms of active-duty and non-active-duty outpatient needs, the transfer of active-duty and non-active-duty outpatient needs and, the transfer of provider training from the benefit to the operational/contingency mission.

82-8 JOHNSON, LC & CL Spinweber

(MR04101003-0157)

Quality of Sleep and Performance in the Navy: A Longitudinal Study of Good and Poor Sleepers  
In: C Guilleminault & E Lugaresi (eds), *Sleep/Wake Disorders: Natural History, Epidemiology and Long Term Evolution (in press)*  
(Center Publication, AD#A118-420)  
(In briefer form) Good and Poor Sleepers Differ in Navy Performance  
*Military Medicine (in press)*

Abstract: The relationship between perceived sleep quality and career effectiveness was studied in Navy corpsmen. Two samples of Naval School of Health Sciences students were asked, "Overall, what kind of sleeper are you?" Based on responses, 506 "good" sleepers and 109 "poor" sleepers were selected for longitudinal study and

followed for 6 years. For replication, sample 2, consisting of 1,024 good and 188 poor sleepers, was identified in 1978-1979 and followed for 2 years. At enlistment, there were no differences between good and poor sleepers on measures used as predictors of career effectiveness, i.e., age, education, AFQT, and SCREEN score.

Compared to good sleepers, poor sleepers were less effective sailors. As a group, poor sleepers received fewer promotions during their careers and thus remained in lower paygrades, were less frequently recommended for re-enlistment, and their attrition rate was higher. The poor sleeper was also more likely to be hospitalized during his tour of duty. Three possible factors could be related to the less effective performance of poor sleepers: (a) shorter total sleep time leads to a chronic sleep debt, (b) the sleep of poor sleepers is of poorer quality, or (c) poor sleep is one of the complaints that characterize people with chronic psychological problems. The third factor appears to be most important.

82-9 KOLB, D; GD Baker & EKE Gunderson (M0096PN001-1034)  
Effects of Alcohol Rehabilitation Treatment on Health and Performance of  
Navy Enlisted Men  
(Center Publication, AD# A120-038)

Abstract: Changes in medical care utilization (rates of hospital admission and days hospitalized) and performance (rates of unauthorized absence and desertion) from pre- to post-treatment for alcohol abuse were determined for a group of career Navy enlisted men. Comparisons were made with two control groups matched with the abusers on year of entering the service and age at enlistment. Treatment favorably affected health and performance during the 2-year post-treatment period. While the alcohol abuse group showed no change in the mean number of hospital admissions from pre- to post-treatment, significant increases were reported for both control groups. Similarly, although rates of unauthorized absence and desertion increased significantly from pre- to post-treatment for alcohol abusers, the increases were proportionately less than those experienced by either control group.

82-10 JOHNSON, LC; CL Spinweber, WF Seidel & WC Dement (MRO4101003-0157)  
Sleep Spindle and Delta Changes during Chronic use of a Short-Acting and a  
Long-Acting Benzodiazepine Hypnotic (Center Publication, AD# A123-149)  
EEG & Clinical Neurophysiology (in press)

Abstract: Twenty-one medically screened insomniacs were studied over 59 nights in a double-blind, parallel groups design study. The 7 patients receiving a short-acting (triazolam) and the 7 receiving a long-acting (flurazepam) benzodiazepine hypnotic showed a similar pattern and magnitude of sleep EEG changes, especially during the latter part of the 37-night treatment period. Both groups significantly increased sleep spindle rate and decreased delta count per minute. The patterns of withdrawal were also similar. Plasma levels of N-desalkylflurazepam were not significantly related to the magnitude of EEG changes.

82-11 EDWARDS, EA & WC Suiter (M0095PN002-5044)  
The Use of Non-Barbiturate Buffers in Counterimmunoelectrophoresis  
(Center Publication, AD# A120-038)

Abstract: Counterimmunoelectrophoresis (CIE) and cellulose electrophoresis have traditionally been run by using barbital buffers as the electrolyte of choice. We compared results of CIE identification of 1 viral and 4 bacterial antigens using

non-barbiturate buffers and a barbitol buffer. One of the non-barbiturate buffers gave results equal to the barbitol buffer for all 5 antigen systems tested. These data show that buffers other than barbitol buffers can be used in the CIE test to identify bacterial and viral antigens.

82-12 HOIBERG, A

(M0099PN01C-0008)

Longitudinal Health Risks among Graduates and Disenrollees from Diving School  
(Center Publication, AD# A121-113)

Abstract: This longitudinal study examined the health risks associated (1) with the hazardous occupation of diving and (2) with failing to successfully complete a diver training program. Comparisons of annual hospitalization rates between graduates ( $n=684$ ) and disenrollees ( $n=190$ ) of the U.S. diving school revealed no significant differences in rates during the 2-year preschool, or baseline, period. During the 13-year follow-up, there were no significant differences between graduates and disenrollees in hospitalization rates for all diver-related diagnoses and for all other diagnoses, with the exception of the significantly higher rate for alcohol/drug dependence among disenrollees than graduates. The time interval of greatest vulnerability for being hospitalized was during the first 2-year postschool period, especially for disenrollees who had a threefold increase in hospitalization rates from the preschool period. These results suggested that failing to complete an occupational training program represents a greater health risk to the individual than the health risks associated with the hazardous occupation itself.

82-13 BUTLER, MC; LA Johnson & PT Bruder

(M0106PN001-0002)

Perceived Role and Task Characteristic Influences on Satisfaction, Commitment, and Turnover Decision-Making in Three Health Care Occupations

Abstract: The present study examined the differential effects of a combination of individual, role, and perceived task characteristic measures on satisfaction, organizational commitment, and turnover decision-making. Survey data obtained from 739 health service administration, science, or clinical care professionals, analyzed via a combination of correlational and ANOVA techniques, indicated that task characteristics predominantly influenced job satisfaction and turnover intention while a combination of individual and role measures were related to organizational commitment and turnover decision-making. Implications for the use of individual role/organizational compatibility concepts as determinants of organizational commitment and retention are discussed.

82-14 CHAFFEE, RB & RE Bally

(MF585271C2-0002)

Mental Health Care in a Fleet Mental Health Support Unit

Abstract: The present study sought to describe the patient population and service delivery at a single small Navy outpatient mental health clinic by collecting data directly from patient/clinician encounters. The total sample included 240 Navy officers and enlisted personnel and 6 Marine Corps service members seen during a 9-month period. Major findings were that most patients were referred from the base dispensary's sick call, that services provided consisted almost exclusively of evaluation and individual psychotherapy, and that a large proportion of patients seen (56.3%) received no psychiatric diagnosis. Further, the problems presented by patients seen reflected difficulties specific to career and emotional developmental

levels. The findings are discussed in terms of their implications for the delivery of outpatient mental health services in the Navy.

82-15 NICE, DS & RI Monzon

(MF585271C2-0001)

Attitudes of Military Health Care Providers toward Proposed Automation of Outpatient Medical Records *Military Medicine (In press)*

Abstract: Attitudes toward the current medical record system and attitudes concerning the proposed automation of ambulatory records were obtained from outpatient health care providers (n=190) working in either of two comparably sized Navy health care facilities. Positive attitudes toward automation were associated with levels of previous computer experience and lower levels of satisfaction with the current system. In general both direct and non-direct care providers endorsed the availability of hard copy records and the ease of use of the present system but expressed concern regarding the loss of records, time required to locate records, and incomplete records. Positive attitudes toward a proposed automation of records focused on retrieval and access, speed, and accuracy. The primary concerns were associated with training personnel, breakdowns, and implementation. Results are discussed in terms of potential user resistance.

82-16 KILPATRICK, ME; EJ Mueller II, & EA Edwards

(M0095PN002-5081)

Rapid Diagnosis of Beta-Lactamase Enzyme in Penicillinase Producing *Neisseria Gonorrhea*  
(Center Publication, AD# A121-112)

Abstract: A chromogenic cephalosporin technique and an acidometric technique to diagnose the presence of  $\beta$ -lactamase activity were adapted for rapid diagnosis *in vitro*. These tests were done *in vivo* in an area of high prevalence of PPNG on males with clinically uncomplicated gonococcal urethritis. The acidometric technique failed to give a positive result. The rapid chromogenic cephalosporin technique had a 50% correlation with standard diagnostic procedures. The failure of these two rapid diagnostic techniques is thought to be due to inadequate numbers of gonococcal organisms present on the urethral swabs.

82-17 CHAFFEE, RB

(M0096PN001-1039)

Completed Suicide in the Navy and Marine Corps (Center Publication AD# A127-170)

Abstract: All completed suicides among active-duty Navy and Marine Corps members during calendar years 1966 through 1977 were extracted from archival data. The resulting sample contained 549 Navy and 427 Marine Corps personnel. The subgroups were described in terms of demographic variables and method of injury, and comparisons were made between the services. Incidence rates for Marine Corps middle range (E-4 through E-6) and junior enlisted personnel (E-1 through E-3) were double and triple the comparable Navy rates, respectively, but were lower than the comparison rates available for the general U.S. population of white males. The Marine Corps sample was significantly younger than the Navy sample, and mean length of service was significantly longer for the Navy completed suicides. Marine Corps personnel completed suicides significantly more often using firearms than Navy personnel. Findings were compared with data available for Army service members and previous studies of naval personnel. The risks inherent in inferring that the use of firearms in Navy and Marine Corps completed suicides relating to their availability to military personnel were noted.

82-18 KOLB, D; EKE Gunderson & P Coben (M0096PN001-1039)  
Profile of the Psychiatric Inpatient Population in a Major Naval Hospital  
(Center Publication, AD# A124-100)

Abstract: Archival records were examined for enlisted Navy personnel admitted to the psychiatric service of a major naval hospital. A larger proportion of patients was diagnosed psychotic and smaller proportions were diagnosed neurotic or Personality Disorder than was true in earlier studies. Greatest stability in diagnosis from admission to discharge was noted for the psychotics and least for the neurotics. Number of days hospitalized was considerably less for most diagnostic groups than was reported previously. When patients were grouped by discharge diagnosis specific profiles emerged. Those diagnosed Personality Disorder were very young men and women, in the lower pay grades, and with the fewest months of service. They were most likely to be recommended for administrative separation and had the lowest effectiveness rate following release from the hospital. Those receiving Adjustment Reaction, Neurosis, or Alcohol diagnoses were older, had more time in service, were of higher pay grade, and had effectiveness rates of 60% or greater. The implications of the findings are discussed including the need for comparative studies with other hospitalized populations.

82-19 WALLICK, MT; RR Vickers, Jr., & DH Ryman (M0096PN001-1035)  
Revision of a Questionnaire to Measure Stress and Related Aspects of Basic Training  
(Center Publication, AD# A123-134)

Abstract: An initial questionnaire, developed to provide situation-specific measures of stress and related factors in Marine Corps basic training, identified four factors as defining the major domains of recruits' perceptions of training. Since several scales with lower internal consistency than desired were excluded from the analysis, the number of basic factors required to understand stress effects in training might have been underestimated.

A revised questionnaire was administered to a random sample of 425 recruits graduating in February and March 1980. Five of seven revised scales showed acceptable internal consistency. Factor analysis indicated that the original four factors were reproducible. Two further factors were identified which resulted from the splitting of two of the original factors.

Four general factors describe the key psychological facets of basic training: (a) Discipline-Job Pressure reflecting role demands on recruits, (b) Leader Admiration/Support reflecting Drill Instructor role model characteristics, (c) Leader structuring and clarity of role expectations, and (d) Group teamwork and support. Leader Admiration/Support and Leader Structure have distinct subdomains that should be considered to obtain a detailed picture of training experience and stress effects.

82-20 NICE, DS; MC Butler & L Dutton (MF585271C2-0001)  
Patient Satisfaction in Adjacent Family Practice and Non-Family Practice Navy Outpatient Clinics (Center Publication)

Abstract: Patient satisfaction was assessed in adjacent family practice (N=341) and non-family practice (N=390) clinics at a Naval Regional Medical Center. Results indicated that patients in the family practice clinic were significantly more satisfied with care than those in the non-family practice clinic. Although older people and males were generally more satisfied with care, demographic factors did not differentially affect patient preferences for the family practice approach to ambulatory care.

82-21 SANBORN, WR & IM Toure

(M0095PN002-5068)

A Simple Kit System for Rapid Diagnosis of Cerebrospinal Meningitis in Developing Areas  
(Center Publication, AD# A123-159)

Abstract: A simplified portable diagnostic kit employing coagglutination reagents has been developed for the rapid, bed-side diagnosis of cerebrospinal meningitis. Field trials employing this kit were conducted in rural sub-Sahara Africa to diagnose the etiologic agents of meningitis outbreaks. West African village medical attendants successfully used the kit to rapidly and specifically diagnose meningitis cases. Other acute infections can also be rapidly diagnosed in a similar manner. This kit offers appropriate technology for support of primary health care delivery in rural regions of developing countries.

82-22 HERMANSEN, L & WM Pugh

(M0933PN003-0001)

A Prototype System Approach for the Definition of Medical Information Requirements  
(Center Publication)

Abstract: The Navy Occupational Health Information Monitoring System (NOHIMS) is designed to coordinate the components of the Navy's occupational health program. The primary objectives of this system include identifying employees, determining and evaluating their exposures, and maintaining an historical file of the medical and environmental information. In order to facilitate communication between the system developers and the intended users, an interim system was implemented and modified according to user feedback. Several of the changes to the initial system are discussed and the impact of NOHIMS on the program at a pilot facility is evaluated by analyzing the patterns of laboratory tests performed before and after the implementation of NOHIMS. This analysis indicated that the implementation of NOHIMS resulted in fewer tests for employees with minimal exposures and more tests for personnel with serious exposures. It was concluded that NOHIMS improved the utilization of the clinic's resources and that the interim system contributed to the system's efficiency by facilitating communication between the system's designers and users.

82-23 GARLAND, FC; G Seals & G Luiken

(MRO4122001-0005)

Computers in Hematology: Implementation in an Occupational Health Clinic

Abstract: The Naval Health Research Center in collaboration with the Naval Weapons Center (NWC), China Lake, California, is currently conducting a hematological monitoring program for all NWC employees. An automated blood cell analyzer and auxiliary computer equipment are efficiently handling the production and analysis of large amounts of hematological data. These data are combined with information obtained through questionnaires. Analysis is performed using SPSS and computer graphic packages.

82-24 SPINWEBER, CL; R Ursin, RP Hilbert & RL Hilderbrand

(MR0000101-6018 &  
MRO4101003-0157)

L-tryptophan: Effects on Daytime Sleep Latency and the Waking EEG  
(Center Publication, AD# A188-012)  
EPL & Medical Neuropsychology (in press)

Abstract: The effects of L-tryptophan (4 g) on the waking EEG and daytime sleep were studied in a group of 20 normal adults. Subjects were assigned to a morning, or afternoon group, and data were collected on two occasions, after L-tryptophan

and after placebo, assigned in a counter-balanced order. L-tryptophan significantly reduced sleep latency without altering nap sleep stages and elevated plasma total and free tryptophan levels. EEGs were digitized on-line and later analyzed for changes in five frequency bands: 16-40 c/sec (beta), 13.0-15.5 c/sec (sigma), 8.0-12.5 c/sec (alpha), 4.0-7.5 c/sec (theta) and 0.5-3.5 c/sec (delta). During waking EEGs, L-tryptophan significantly increased alpha time, theta time, and theta intensity and significantly decreased alpha frequency. No wave bands were altered during sleep. L-tryptophan is an effective daytime hypnotic which can facilitate sleep onset at clock times which do not coincide with biological sleep times. The hypnotic effects may be mediated by lowering arousal level during the awake state, thus setting the stage for more rapid sleep onset.

82-25 NAITOH, P; C Englund & DH Ryman

(MF5852801B-0003)

Restorative Power of Naps in Designing Continuous Work Schedules  
(Center Publication, AD# A123-290)

Abstract: Many occupations involve continuous work (CW) for extended periods of time. Recovery from the fatigue and sleepiness incurred by persons in CW is usually accomplished by short sleep (naps) before embarking on another episode of CW. Previous studies have shown that naps have a restorative effect on task performance, mood and motivation for work. However, recent studies in our laboratory suggest that a 2-hour nap from 0400 to 0600 following 45 hours CW failed to restore performance and mood, whereas a 1200 to 1400 nap after 53 hours CW was effective in restoring performance and mood. Thus, time-of-day of naps has determined the "restorative power". In this paper, data from 38 U.S. Marine Corps volunteers are presented to show that the restorative power of a 0400 to 0700 nap is sufficient to support post-nap performance of Four Choice task for an additional 20 hours. This early morning 3-hour nap has also reduced the rate of degradation of performance of subjects on Four Choice and Simple Reaction Time tasks, in comparison with those who worked without napping. To assure overall high quality performance in recurring episodes of CW, design of work/rest schedule should call for 3 hours or longer of recovery sleep even after CW as short as 20 hours. A model of CW/nap length effects on performance is presented as an aid to conceptualizing the beneficial effects of naps.

82-26 KILPATRICK, ME; WR Sanborn, EA Edwards WT Harrington & RK Boehm

Suitcase-sized Microbiology and Clinical Laboratories for (M0095PN002-5068)  
Deployed Military Medical Use (Center Publication, AD# A123-634)  
Military Medicine (in press)

Abstract: Suitcase-sized microbiology and clinical laboratories were deployed for use in the field. Their combined weight is 25 Kg, with a volume of 4.5 cubic feet. A McArthur microscope, an electrophoresis apparatus, a waterbath-incubator, a reflectance spectrophotometer and a miniaturized centrifuge compose the equipment. Rapid diagnostic tests for bacterial causes of meningitis, diarrheal disease, and pneumonia can be performed. Urinalysis, routine serology and hematology, and limited chemistry studies can be done. The laboratories performed satisfactorily under jungle, desert, and cold weather conditions and gave results comparable to those from a standard laboratory. Portable laboratory capability should be considered a reality.



82-27 KOLB, D; RB Chaffee & P Coben

(MF585271C2-0002)

Comparisons of Clinical Practice at Four Navy Fleet Mental Health  
Support Units (Center Publication, AD# A124-171)

Abstract: The populations treated at four Navy outpatient psychiatric clinics were compared on demography, factors precipitating referral, source of referral, diagnosis, and disposition. There was a large degree of congruence between patient characteristics and patterns of clinical practice. At the same time, there were indications that other variables including clinicians' characteristics and biases affected treatment practices.

82-28 VICKERS, RR; MT Wallick & LK Hervig

(M0096PN001-1035)

The Marine Corps Basic Training Experience: Stresses, Leadership, and  
Group Cohesion as Predictors of Attitudes, Health and Performance

Abstract: Retrospective questionnaire assessments of Marine Corps Basic Training (BT) stresses, leadership style, and group cohesion were related to BT outcomes in two samples of recruits. Stresses were classified as positive or negative based on recruit interviews carried out as part of an earlier study. Outcomes included attitudes toward the Marine Corps, feelings of personal development during BT, performance in BT, health during BT, and Fleet Marine Force (FMF) attrition. Major findings were: (a) Recruits endorsed statements describing positive stresses (e.g., rules emphasis, high performance goals, effort requirements) more strongly than they did statements describing negative stresses (e.g., punishment, loss of freedom, unfair treatment). (b) Positive stresses were associated with better attitudes toward the Marine Corps and feelings of self-improvement. (c) Except for unfair treatment, negative stresses had little effect on attitudes. (d) Stresses did not affect performance, health, or FMF attrition. (e) Leadership style was an important predictor of attitudes toward the Marine Corps. (f) The typical BT graduate achieved performance and fitness levels well above minimum Marine Corps requirements. Overall, BT produces positive outcomes for graduates. Stress evaluations must be based on attitudinal outcomes because stress was not related to performance, health, or FMF attrition. Positive stresses were therefore shown to have positive effects. Unfair treatment was the most questionable BT stress. The limited impact of negative stresses may be due to the contest of high positive stress levels and good leadership.

82-29 VICKERS, RR; TL Conway, JA Hodgdon & MM Duett

(MR0000101-6028)

Motivation Predictors of Use of a Stationary Exercise Bicycle during  
Submarine Deployment (Center Publication)

Abstract: The success of the Navy's physical fitness program depends on motivating people to participate in fitness activities. Expectancy-value (EV) theory assumes people are motivated to do things that provide desirable outcomes and/or avoid negative outcomes. An EV motivation measure was used to predict use of a bicycle ergometer during a six-month submarine deployment. Additional motivational scales were administered: personality measures of persistence, perceived physical ability, liking for physical activity, and reasons for exercising (self-improvement, social/recreation, organizational requirements). Findings were: (a) the EV and self-improvement measures were weak, but significant, predictors of bicycle use. Both

measures were sensitive to response biases. Because both of the significant predictors of bicycle use reflect what a person gets out of exercising, the results supported the logic of the EV approach to motivation. However, substantial improvements would be needed to use either of the significant predictors for applied purposes. (b) The bicycle was used infrequently, illustrating that providing exercise facilities does not ensure their use. Understanding what determines utilization rates is therefore important to the success of fitness programs.

82-30 JOHNSON, LA & MC Butler

(M0106PN001-0002)

Perceived Role and Task Characteristic Influences on Job Satisfaction, Organizational Commitment, and Turnover Decision-Making among Navy Health Care Administrators

Abstract: The present study examined the differential effects of a combination of personal characteristic, role, and perceived task characteristic measures on satisfaction, organizational commitment, and turnover decision-making. Survey data obtained from 659 Navy Health Care Administrators, analyzed via a combination of correlational and regression techniques, indicated that task characteristics were uniquely related to job satisfaction while role orientation variables were uniquely related to organizational commitment. Finally, measures of job satisfaction and organizational commitment appeared to be directly related to turnover decision-making while task characteristics, role stress, and role orientation were best seen as antecedent correlates of satisfaction and commitment. Implications for theories of organizational commitment and retention are discussed.

82-31 Hoiberg, A & C Blood

(MF5852801A-0001)

Age-Specific Morbidity among Naval Aviators

Abstract: This study compares the morbidity (hospitalization) rates by age of male Navy aviators (n=22,417) with rates for three male control populations: non-pilot aircrew officers (n=9,483), unrestricted line officers (n=55,593), and staff officers (n=46,565). Aircrew members and pilots have the highest hospitalization rates of the four officer groups for both total admissions and for most of the 16 major diagnostic categories. Younger pilots have the highest rates for disorders of tooth development and eruption and accidental injuries (primarily sports related) while one of the highest rates for older pilots is observed for circulatory diseases. In comparisons with civilian samples, the four officer populations are considerably healthier. To further protect the health of Navy personnel, a health risk profile should be developed, implemented, and used as the initial step in reducing and eliminating health risk factors.

82-32 Hoiberg, A

(MF5852801A-0001)

Health Status of Women in the U.S. Military (Center Publication)

Abstract: This report focused on the major health-related issues concerning women in the military: pregnancy-related conditions, physical injuries and capabilities, and stress-related disorders. The most frequent reason for being hospitalized among Navy women who enlisted from 1974 to 1979 was for a pregnancy-related condition which accounted for 21.9% of all hospitalizations. Comparisons of injury-related hospitalizations indicated that women recruits had the highest rates

across occupational groups and pay grades; women assigned to nontraditional jobs had somewhat higher admission rates for injuries than women in traditional jobs. Rates for injury- and stress-related conditions tended to decrease with increasing pay grade levels. Programs designed to improve women's physical conditioning, to enhance their job-related capabilities, and to expand their opportunities have been implemented in all branches of the military.

82-33 Hoiberg, A; S Berard, RH Watten & C Caine (M0099PN01C-0008)  
Correlates of Weight Loss in Treatment and at Follow-up (*Center Publication*)

Abstract: Results showed that a Navy-sponsored weight reduction program was relatively successful in helping participants lose weight during treatment and throughout a one year follow-up. Of the 531 women and 155 men who reported a mean weight loss of 22 pounds and 28 pounds, respectively, 32% of the women and 29% of the men responded that no weight had been gained during treatment and follow-up. Regression analyses identified predictors of weight loss to be a self-reported improvement in health status, a history of few dieting attempts, and adult onset of obesity. Correlates of weight loss maintenance included a change in eating behavior, a self-reported improvement in health status and feelings toward dieting, adult onset of obesity, and physical exercise participation. Such results pointed up the importance of developing an intervention program that incorporates an exercise regimen and the adoption of a long-term nutritionally sound eating program.

82-34 Jones, AP; LA Johnson, MC Butler & DS Main (M0106PN001-0002 &  
Apples and Oranges: An Empirical Comparison of Commonly ONR Reimbursable)  
Used Indices of Interrater Agreement  
Academy of Management Journal (in press)

Abstract: The organizational literature has used a variety of techniques to assess agreement among raters or outside observers. Few explicit guidelines exist for comparing these techniques or interpreting the range of values reported in the literature. The present study was designed to provide a better understanding of issues related to interrater agreement by (a) reviewing currently popular indices of agreement and (b) conducting an empirical comparison of the various techniques. This comparison indicated that the different indices are not directly comparable in regard to the magnitude of the estimates produced or the information conveyed. Second, some of the indices may be severely distorted if applied to homogeneous sets of ratings. Third, although analyses of ratings at an item level might suggest inadequate agreement, composites of those items may yield satisfactory indications of interrater agreement. Implications for future studies using multiple raters are discussed.

82-35 McNALLY, MS & JC Ferguson (MF585271C2-0003)  
A Longitudinal Analysis of Injuries Resulting in Physical Disability

Abstract: U.S. Navy enlisted personnel hospitalized with primary diagnoses under the Accidents, Poisoning, and Violence (APV) category were followed to determine Physical Evaluation Board (PEB) Decisions within six years of initial injury. The probability of disability separation, the severity of disability, and the time between injury and PEB were analyzed as functions of the type of injury and body part. Only 9.5% of APV hospitalizations resulted in a PEB, but 90% of the PEBs resulted in

service separations. More than half of the disability separations involved fractures, dislocations, and sprains/strains to the extremities, especially the lower limbs. Nerve and spinal column injuries, although infrequent, had the highest probability of disability separation. The average time between injury and disability separation was 12.6 months with the more serious injuries (head, abdominal, and amputations) requiring the least average time (5-10 months) and the less serious injuries (fractures, dislocations, and sprains/strains) requiring the longest time (14-15 months). The PEB decisions showed that mobility was an important factor in fitness-for-duty decisions. It was recommended that decision-making guidelines, especially for less serious injuries, be improved to reduce the time between hospitalization and PEB disposition.

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NHRC's Committee for the Protection of Human Subjects in session. Several of the research projects for 1982 required the use of human subjects. The Committee meets once a month to review, recommend, and/or approve/disapprove human protection packets.



Dr. Hodgdon                      CDR McCaughey                      Mr. Edwards                      LT Chaffee  
    Dr. Spinweber                      HMCS Milhouse                      Chaplain Bunce

Chairman                      : Mr. Edwards  
 Deputy Chairman: Dr. Spinweber  
 Chaplain Rep                : LCDR Bunce (Naval School of Health Sciences, San Diego)  
 Legal Rep                    : LT Gorski (Absent) (Judge Advocate General's Office, San Diego)  
 Medical Ofcr Rep: CAPT Bouvier (Absent) (Naval Hospital, San Diego)  
 Deputy MO Rep               : CDR McCaughey  
 Enlisted Rep                : HMCS Milhouse  
 Member(s)                   : Dr. Vickers (Absent)  
 Alt. Member                 : LT Chaffee

1982 PUBLICATIONS \*

- EDWARDS, EA; IA PHILLIPS & WC SUITER  
Diagnosis of Group A Streptococcal Infections Directly from Throat Gargle/Secretions  
Journal of Clinical Microbiology, 1982, 15(3), 481-483  
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- HOIBERG, A (ed), Women and The World of Work. New York: Plenum Publishing Corp., 1982.  
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HOIBERG, A: Introduction: Contributions & Progress, pp 3-20  
PALINKAS, LA: Women and the World of Work: Physical, Mental & Economic Well-being, pp 97-108  
Wagner, M; A HOIBERG, CK Cook & LA PALINKAS: Role Integration & the World of Work, pp 281-294
- HOIBERG, A  
Longitudinal Health Effects Associated with Aviation  
In: Proceedings of the 8th Psychology in the DOD Symposium, Colorado Springs: U.S. Air Force Academy. April, 1982
- HOIBERG, A  
Women in the United States Armed Forces  
In: Proceedings of the 24th International Congress of Military Medicine & Pharmacy. Athens, Greece, April 1982
- HOIBERG, A & PJ Thomas  
The Economics of Sex Integration: An Update of Binkin and Bach  
Defense Management Journal, 1982, 18(2), 18-25  
<Report #80-31, AD# A120-027>
- HOIBERG, A  
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Journal of Occupational Medicine, 1982, 24, 445-451  
<Report #81-18, Center Publication, AD# A104-017>
- JOHNSON, LC & DA Chernik  
Sedative-hypnotics and Human Performance  
Psychopharmacology, 1982, 76, 101-112  
<Report #81-19, Center Publication, AD# A108-197>
- JOHNSON, LC  
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In: MB Sterman, P Passouanp & MN Shouse (eds), Sleep & Epilepsy. New York: Academic Press, 1982. pp 381-394  
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- JONES, AP; M Tait & MC BUTLER  
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- KALICHMAN, MW; WM Burnham & KE Livingston  
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- KALICHMAN, MW  
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Epilepsia, 1982, 23, 163-171
- KALICHMAN, MW  
Neurochemical Correlates of the Kindling Model of Epilepsy  
Neuroscience & Biobehavioral Reviews, 1982, 6, 165-181
- Kay, T; PT Bruder & MC BUTLER  
Navy Uniformed Social Workers: Introduction to a Longitudinal Career Study.  
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- KILPATRICK, ME; NA El Masry, S Bassily & Z Farid  
Oxamniquine versus Niridazole for Treatment of uncomplicated Schistosoma mansoni Infection  
American Journal of Tropical Medicine & Hygiene, 1982, 31, 1164-1167
- KILPATRICK, ME; NA El Masry, S Bassily & Z Farid  
Presymptomatic Schistosomal Colonic Polyposis  
American Journal of Tropical Medicine & Hygiene, 1982, 76, 109-110
- KILPATRICK, ME; D de Treville, S Sidarous & S Allen  
A Medical Survey of the Bishari and Ababdi in the Red Sea Governorate, Egypt  
Journal of Egyptian Public Health Association, 1982, 57, 60-69

- KOLB, D & EKE GUNDERSON  
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- MARCINIK, EJ  
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- Muzet, A; LC JOHNSON & CL SPINWEBER  
Benzodiazepine Hypnotic Increase Heart Rate during Sleep  
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 <Report #81-1, Center Publication, AD# A101-785>
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\* Names in capital letters are NHRC staff (current and/or past)

MANUSCRIPTS "IN PRESS"

- ENGLUND, CE: The Diurnal Function of Reading Rate, Comprehension and Efficiency <Report #79-28>  
 NAITOH, P; et al: Comparisons of Monosinusoidal with Bisinusoidal (Two-Wave) Analysis <#79-29>  
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 In: Proceedings, XIV International Conference of the International Society of Chronobiology. Hannover, West Germany, 8-12 July 1979 (in press)
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 In: S Mednick (ed), Longitudinal Research in the United States, (in press)  
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 In: J Brown, MJ Collins, & FD Margiotta (eds), Manpower Realities in the 1980s. Boulder, Colorado: Westview Press, (in press) <Report #79-15>
- HOIBERG, A  
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 In: JA Arima (ed), Military Psychology: The Cutting Edge. Monterey: Naval Postgraduate School, (in press) <Report #80-27>
- JONES, AP; DS MAIN, MC BUTLER & LA JOHNSON  
 Narrative Job Descriptions as Potential Sources of Job Analysis Ratings  
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 <Report #81-13, Center Publication, AD# A108-789>
- KOLB, D & EKE GUNDERSON  
 Medical Histories of Alcohol Abusers & Controls during the First 12 Years of Naval Service  
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 Medical Histories of Problem Drinkers during their First 12 Years of Naval Service  
Journal of Studies on Alcohol, (in press)
- KOLB, D & EKE GUNDERSON  
 Research on Alcohol Abuse and Rehabilitation in the U.S. Navy  
 In: M Schuckit (ed), The Epidemiology of Alcoholism, (in press)
- Mullaney, DJ; DF Kripke, PA Fleck & LC JOHNSON  
 Sleep Loss and Nap Effects on Sustained and Continuous Performance  
Psychophysiology, (in press)
- NAITOH, P; AN Beare, RJ Biersner & CE ENGLUND  
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International Journal of Chronobiology, (in press)  
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- NICE, DS  
 The Course of Depressive Affect in Navy Wives during Family Separation  
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- SANBORN, WR  
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- SPINWEBER, CL  
 Plasma L-tryptophan Levels, Subjective Sleepiness, and Daytime Sleep  
 In: E Hartmann (ed), L-tryptophan in Psychiatry and Neurology. New Haven: Yale University Press, (in press) <Report #80-25>
- VICKERS, RR; TL CONWAY, RH RAHE & HW WARD  
 Within-Person Covariation between Mood and Biochemicals  
Biological Psychology, (in press) <Report #80-20>

\* Names in capital letters are NHRC staff (current & past)

DURING 1982 .....

Formal reports of research findings were reported at national, international, and regional meetings of scientific and medical societies.

AMERICAN COLLEGE OF SPORTS MEDICINE, ANNUAL MEETING; Minneapolis, Minn., 26-29 May

Dr. Hodgdon: "Correspondence of Plasma and Saliva Cortisol and Testosterone" (Bennett/Hodgdon/Vickers/Polland); Poster Presentation

Dr. Hodgdon: "Hematologic Parameters of Trained Distance Runners and Following Induced Erythrocythemia" (Goforth/Campbell/Hodgdon/Sucec); Poster Presentation

AMERICAN COLLEGE OF SPORTS MEDICINE; SOUTHWEST CHAPTER of the; Las Vegas, Nev., 10-20 November

Dr. Hodgdon: "The Effects of Endurance Training at 2440 Meters upon Anaerobic Threshold at Sea Level on Young Male and Female Distance Runners" (Berenda/Hodgdon/Sucec/Hazard/Roy/Phillips)

AMERICAN PSYCHOLOGICAL ASSOCIATION, Washington, DC, 23-27 August

LCDR Butler: "Quality of Life and Organizational Effectiveness in Military and Nonmilitary Environments" (Chair, Symposium Presentation)

LCDR Butler: "Work and Nonwork Contributions to Individual and Organizational Effectiveness" (Butler/Bruder/LA Johnson)

LCDR Butler: "Organizational Differences in the Provision of Outpatient Health Care Services" (Butler/Monzon/Nice)

LCDR Butler: "Perceived Decision-making Environments: Occupational Influences on Quality of Worklife" (Bruder/Butler/LA Johnson)

LCDR Butler: "Patient Reaction to Family Practice and Nonfamily Practice Ambulatory Care" (Dutton/Nice/Butler)

LCDR Butler: "Perceived Role and Task Characteristic Influences on Satisfaction, Commitment and Turnover" (LA Johnson/Butler/Bruder)

LT Chaffee: "Military Health Service Delivery" (Chair, session on)

LT Chaffee: "Suicide and Self-Destructive Behavior among Navy Personnel"

Dr. Englund: "Moderate Physical Work Effects on Chronopsychological Variables during Sustained Performance"

Linda Hervig: "Perceptions of Control, Mood and Stress in Recruit Training"

Anne Hoiberg: "Collision at Sea, The Traumatic Aftereffects"

Anne Hoiberg: "Status of Women in the U.S. Military"

Dr. Nice: "The Contributions of Social and Emotional Factors to the Use of Navy Outpatient Medical Facilities"

Dr. Nice: "Patient Reactions to Family Practice and Nonfamily Practice Ambulatory Care" (Dutton/Nice/Butler)

Dr. Spinweber: "Sleep Latency in Young Poor Sleepers: Self-reports versus Laboratory Findings"



AMERICAN SOCIETY OF HEMATOLOGY, Washington, DC, 3-7 December

HM Koenig: "Erythrocyte Protoporphyrin Measurements is Useful for Classifying Microcytic RBC Disorders in Adults" (Koenig/Nelson/Marsh)

AMERICAN SOCIETY OF MICROBIOLOGY, 82nd Annual Meeting; Atlanta, Georgia, 11 March

Dr. Kilpatrick: "Negative Cerebrospinal Fluid Cultures in Partially Treated Bacterial Meningitis"

ASSOCIATION OF MILITARY SURGEONS OF THE U.S., Orlando, Florida, 16-24 October

Dr. Gray: "U.S. Navy's Cardiac and Medical Screening Program: Additional Perspectives"

Dr. Nelson: "Microcomputers: A Vital Adjunct to Clinical Investigation" (Scientific exhibit)

ASSOCIATION FOR THE PSYCHOPHYSIOLOGICAL STUDY OF SLEEP, San Antonio, Tex., 16-20 June

Dr. Johnson: "EEG Sleep Changes during Chronic Use of a Short- and Long-Acting Benzodiazepine"

Dr. Spinweber: "Sleep Latency in Young Poor Sleepers: Subjective Reports Compared to EEG-Measured Latencies"

HAWAII INTERNATIONAL CONFERENCE ON SYSTEM SCIENCES, 15 Annual Meeting; Honolulu, 6-8 January

LT Chaffee: "Development of a Standard Navy Outpatient Mental Health Reporting System"

William Pugh: "Monitoring Illness in a Closed Work Environment"

William Pugh: "Implementation of a Prototype Registration and Administrative System for Field Use"

INTERNATIONAL CONGRESS ON MILITARY MEDICINE & PHARMACY, 24th Meeting; Athens, Greece, 25-30 April

Anne Hoiberg: "Women in the United States Armed Forces"

INTERNATIONAL ERGONOMICS ASSOCIATION, 8th Congress of the; Tokyo, Japan, 23-27 August

Dr. Naitoh: "Chronopsychological Approach in Human Factors"

INTERNATIONAL SYMPOSIUM ON NIGHT- & SHIFT-WORK, Kyoto, Japan, 30 August-1 September

Dr. Naitoh: "Restorative Power of Nap in Designing Continuous Work Schedules"

NATIONAL COUNCIL ON FAMILY RELATIONS, Annual Meeting; Washington, DC, 12-15 October

Dr. Nice: "Children in Military Families"

PSYCHOLOGY IN THE DOD SYMPOSIUM, 8th Annual Meeting; USAF Academy, Colorado, 21-23 April

Anne Hoiberg: "Longitudinal Health Effects Associated with Aviation"

WESTERN ELECTROENCEPHALOGRAPHY SOCIETY, Seattle, Washington, 11-13 March

Dr. Johnson: "EEG Sleep Changes during Chronic Use of Two Benzodiazepines"

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Reports read, discussions, or presentations at other congresses, centers, and local community media:

ARMED FORCES EPIDEMIOLOGICAL BOARD, Washington, DC, 23 June

Dr. Gunderson: "The Navy Occupational Health Information Monitoring System (NOHIMS)"

CHILDHOOD ENRICHMENT CENTER, San Diego, 21 October

Dr. Kilpatrick: "Preventive Medicine in Childhood: Immunizations, Visual Screening, and Hearing Checks" (Parent's Meeting)

FMF MEDICAL INFORMATION REQUIREMENTS DEFINITION WORKSHOP, NMRDC, Washington, DC, 21 May

Dr. Gunderson: "Routine Health Care Requirements"

JOINT TECHNOLOGY COORDINATING GROUP/COMBAT CASUALTY SUBGROUP, Scientific Program Review, San Antonio, Texas, 14-15 April

Dr. Lang: "Medical Material"

Dr. Gunderson: "Substance Abuse and Mental Health Research"

Doug Kolb: "Recent and Current Studies on Substance Abuse & Mental Health"

NATO PANEL VIII, RESEARCH STUDY GROUP 4: Physical Fitness with Special Reference to Military Forces, USARIEM, Natick, Massachusetts, 3-7 May

Dr. Hodgdon: "National Reports: U.S. Navy Physical Fitness Research Program at NHRC"

Dr. Hodgdon: "Use of an Instrumented Cycle Ergometer Aboard a Submarine" (Hodgdon, Duett, Borkat & Kataoka)

Dr. Hodgdon: "Estimation of Body Fat Content in Several U.S. Navy Samples" (Hodgdon/Marcinik)

Dr. Hodgdon: "Effects of Induced Erythrocythemia on VO2 Max and Running Performance" (Hodgdon/Goforth, Campbell/Sucec)

NATIONAL RESEARCH COUNCIL, Staff of NRMC Medical Follow-up Agency, Washington, DC, 6 December

Dr. Palinkas: "Ethnicity and Illness among Enlisted Navy Personnel"

NAVAL REGIONAL DENTAL CENTER, Naval Station, San Diego, 12-16 April

Dr. Lang: "Oral & Maxillofacial Surgery" (Post-graduate Course for USN Dental Corps Officers' Continuing Education Program)

NAVAL WEAPONS CENTER, China Lake, Calif.

Dr. Garland (11 August) White Blood Cell Count Study (to Research Dept-38)  
William Pugh (24 March): "White Blood Cell Count Study Progress"

congresses, centers, and local community media (cont.)

NAVY OCCUPATIONAL & ENVIRONMENTAL HEALTH WORKSHOP, 24th MEETING; San Diego (Holiday Inn/Embarcadero), 10-14 May

William Pugh: "NOHIMS Demonstration" (with Larry Hermansen) and "Presentation to Navy Industrial

Dr. Gunderson: "Occupational Medicine Information Systems"

NAVY PERSONNEL RESEARCH & DEVELOPMENT CENTER, San Diego, 8 December

Anne Hoiberg: "Health Status of Women in the U.S. Military" (by invitation to the Delegation from the Netherlands, CAPT G. Beekhoof, RNLN, Souss-Chief Personnel Policy, and Dr. L. I. Arts-Moens, Social Scientist, RNLN)

OB-GYN ARMED FORCES DISTRICT MEETING, Portland, Oregon, 3-7 October

TR Groff: "Assisted Obstetrical Statistics: A Preliminary Report" (Groff/Nelson/Pruyn)

ONR-NMRDC CONFERENCE ON BRAIN ELECTRICAL ACTIVITY, New Orleans, 11-12 February

Dr. Johnson: "Brain Electrical Activity is a Dependent Variable"

SAN DIEGO COUNTY PHARMACISTS ASSOCIATION, San Diego, 6 June (Seminar on Sleep & Sleep Disorders: What a Pharmacist Should Know)

Dr. Spinweber: "The Parasomnias and Insomnias"

Dr. Johnson: "The Sleeping Pills: When to Use--What to Expect"

WESTERN BEHAVIORAL SCIENCES INSTITUTE, La Jolla, Calif., 4 May (Seminar on Bio-Psycho-Social Factors in Mental and Physical Health)

Dr. Johnson: "Rhythms during Sleep"

WORKSHOP IN EPIDEMIOLOGY AND NATURAL HISTORY OF SLEEP DISORDERS, Milano Marittima, Italy, 25-29 May

Dr. Spinweber: "Quality of Sleep and Performance in the Navy: A Longitudinal Study of Good and Poor Sleepers"

4TH RSG4 PHYSICAL FITNESS MEETING WITH SPECIAL REFERENCE TO MILITARY FORCES, Natick, Massachusetts, 3-7 May

LT Marcinik: "Results of two Research Studies involving Male and Female Navy Personnel participating in Aerobic/Circuit Weight Training Programs"

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Presentations of research findings were made at colloquia and meetings at medical colleges and universities:

NATIONAL INSTITUTE OF INDUSTRIAL HEALTH, Kawasaki, Japan

Dr. Naitoh (14 September): "Chronobiology: Its Application and Future" (Lecture Discussion)

medical colleges and universities (cont.)

SAN DIEGO STATE UNIVERSITY, San Diego, California

- Dr. Garland (14 April, School of Public Health): "NHRC Data Bases and Ongoing Research Projects"
- Dr. Hodgdon (2 December, Physical Education Department): "Computers and Data Acquisition" (Class Guest Lecturer)
- Dr. Johnson (24 February): "Sedative-Hypnotics and Human Performance"
- Dr. Spinweber (23 March, Department of Psychology): "Dreams and Psychic Phenomena"
- Dr. Vickers (28 April, Physical Education Department): "Motivational Aspects of Physical Fitness and Physical Education"

UNIVERSITY OF CALIFORNIA AT SAN DIEGO, La Jolla, California

Dr. Garland:

- 2 March (School of Medicine): "White Blood Cell Count Study Plan and Procedures"
- 10 March (School of Medicine): "Data Bases and Ongoing Research Projects"
- 6 July (School of Medicine): "Hodgkins Disease in Naval Personnel, Plans and Procedures"

Dr. Kalichman:

- 19 January (Students & Staff): "Kindling as a Model of Epilepsy"
- 23 March (Students & Staff): "GABA and Epilepsy"
- 25 March (Students & Staff): "Kindling and Epilepsy"
- 26 May (Undergraduate Students): "Benzodiazepines"

Dr. Spinweber:

- 28 January (Inservice Training, Counseling & Psychological Services): "Sleep Disorders: Diagnosis and Treatment"
- 20 April (Earl Warren College & UCSD Health Professions Program): "Sleep Disorders: An Interdisciplinary Approach"
- 11 May (Neuroscience Department, Research Seminar): "Insomnia and Sleeping Pills"

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Research results and findings were reported and discussions led with hospital staff at these hospitals and clinics:

DONALD N. SHARP MEMORIAL COMMUNITY HOSPITAL, San Diego, California

- Dr. Spinweber (8 December, Medical Staff): "Insomnia and the Use of Hypnotics in Clinical Medicine"

NATIONAL NAVAL MEDICAL CENTER, Bethesda, Maryland

- Dr. Kilpatrick: 12 March, Infectious Disease Branch  
16 March, Pathology Department

"A Potpourri of Clinical Infectious Disease Research from NAMRU-3"

hospitals and clinics (cont.):

NAVAL MEDICAL RESEARCH INSTITUTE, Bethesda, Maryland

Dr. Kilpatrick (3 November, Army-Navy OCONUS Commanders' Meeting): "Naval Medical Research Institute Detachment, Lima, Peru - NAMRID"

NAVAL REGIONAL MEDICAL CENTERS

Dr. Garland (26 March, NRMHC San Diego, Department of Hematology): "Hematologic Measures and Procedures"

Dr. Garland (14 April, NRMHC Branch Clinic, Naval Weapons Center, China Lake): "White Blood Cell Count Study Procedures"

Dr. Kilpatrick (28 April, San Diego, Infectious Disease Branch): "Rabies Antibodies after Pre-exposure and Postexposure Therapy with HDCV"

Dr. Lang (2 February, San Diego, Oral Pathology & Therapeutics): "Current Concepts of Coagulation" (Annual Continuing Education Course)

Dr. Spinweber (13 October, San Diego, Nursing Continuing Education Program): "What Nurses Need to know about Sleep, Sleep Problems, and Sleeping Pills"

UNIVERSITY HOSPITAL, San Diego, California. 14 November, Navy Medical/Dental Reserve Units, Navy Reserve Center, "Health Research in the Navy Today"

Dr. Englund: "Sustained Work Research, Work-Rest Cycles and Biological Rhythms"

Dr. Hodgdon: (1) "The Health and Physical Readiness Instruction, OPNAVINST 6110.1B"  
(2) "Methods of Determination of Body Composition"

LT Marcinik: "Physiological Changes in Navy Men and Women Following 10-week Circuit Weight Training Programs"

LT Wallick: "Current Research Activities"

WALTER REED ARMY INSTITUTE OF RESEARCH, Washington, DC

Mr. Edwards (4 November, DOD Conference on Diarrheal Diseases): "Rapid Diagnostic Techniques on Enteric Diseases"

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LINE BRIEFINGS \*

U. S. MARINE CORPS

Marine Corps Base, Camp Pendleton, California

5 February, First Marine Division and First Marine Regiment, staff of; "Sustained Operations Program and Research Findings" by Dr. Englund

20 October, Division Surgeon (CAPT Shima), First Marine Division, "Sustained Operations Program and Findings" by Dr. Englund

Marine Corps Recruit Depot, San Diego, California

20 July, Commanding General (General Rice, and staff), "Sustained Operations Program, request for Subjects" by Dr. Englund

MCRD San Diego, (cont.)

17 November, G-3 Officer (Colonel Mattingly, at NHRC and MCRD), "Performance Program and a Proposed Study on Training and Injury Prevention at MCRD" by Dr. Gray

"Sustained Operations Research" by Dr. Englund

Development & Education Command, Quantico, Virginia

16 November, Office of the Director, Development Center Marine Corps (Brigadier General J. Hopkins, USMC, and his scientific advisor, at NHRC), "Performance Enhancement Program and its Proposed Directions" by Drs. Gray and Englund

U. S. NAVY

Commander, Naval Air Force, Pacific Fleet (COMNAVAIRPAC), San Diego

23 November, Force Medical Officer, "Medical R&D liaison with Pacific Fleet" by Captain Lang, Commander Wood & Commander Berghage

Commander, Naval Surface Force, Pacific Fleet (COMNAVSURFPAC), San Diego

25 October, COMNAVSURFPAC Medical, Administrative Officer (LCDR Bulshazy), "Medical R&D Liaison with Pacific Fleet" by Captain Lang, Commanders Wood & Berghage

15 November, Senior Medical Officer (Captain Good) & Administrative Officer (LCDR Bulshazy), "Rationale for Design of Physical Conditioning Programs for Shipboard Utilization" by LT Marcinik

17 November, Administrative Officer (LCDR Bulshazy), "Shipboard Diagnostic Methods" by LCDR Nelson

The briefing, "Survey of Shipboard Medical Communications and Evacuations" by Dr. Nice, was given to the following commands:

22 September, CINCPACFLT Medical Officer (RADM Lowery), Pearl Harbor, Hawaii

27 September, COMSCPAC Medical, Oakland, California

4 October, COMSCLANT Medical, Bayonne, New Jersey

6 October, CINCLANT FLT Medical & Force Medical Officers of CONNAVSURELANT, COMSUBLANT & COMNAVAIRLANT, Norfolk, Virginia

18 October, Force Medical Officers of COMNAVSURFPAC & COMNAVAIRPAC

Environmental/Occupational Health Service, Pearl Harbor, Hawaii

4 January, Director (Captain Osborn), "NOHIMS Program" by Mr. Pugh

Naval Air Station, Miramar, California

"Evaluation of Environmental, Aircraft, and Individual factors affecting Aviator Performance on the Air Combat Maneuvering Range" by LT Wallick was given to the following NAS staff members:

22 January, Commander Fighter Airborne Early Warning Wing (RADM Furlong)

5 February, Commanding Officer (CDR Christensen) Navy Fighter Weapons School

15 March, All Officers Meeting, Navy Fighter Weapons School

29 March, Commanding Officer (CDR Leonard) VF 301

25 April, All Officers Meeting, VF 301

27 May, Commanding Officer (CDR Knutson) and Safety Officer (LCDR Campbell), VF 126

Naval Air Rework Facility, NAS North Island, San Diego

5 February (Captain Kilpatrick), "Plans to implement NOHIMS for NARF" by Dr. Gunderson & William Pugh

Line Briefings, cont.

Naval Diving & Salvage Training Center, Panama City, Florida

- 12-14 May, Commanding Officer (CDR Banks), "Evaluated Physical Training Program at NAVDIVESALVGTRACEN and discussed findings with recommendations for a Research/Pilot Physical Training Program" by Dr. Gray
- 13 May, Commanding Officer (CDR Banks) and Executive Officer (LCDR McCampbell), "Proposal for Evaluation of Physical Training Program for Navy Divers" by LT Marcinik

Naval Environmental Health Center, Norfolk, Virginia

- 16-17 August, Commanding Officer (Captain R. Nelson), "Hardware requirements of NOHIMS" by Mr. Pugh
- 13-17 September, Project Manager (LCDR S. Forman, at NHRC), "NOHIMS Implementation in San Diego" by Mr. Pugh

Naval Military Personnel Command, Washington, DC

- 10 June, N-6 (Captain W. Jackson), "U.S. Navy Physical Fitness and Medical Screening Program" by Dr. Gray

Naval Medical Research and Development Command, Bethesda, Maryland

- 30 April (CDR Biersner, Code 40-1), "1498 Plans for FY-83 and 5-Year Plan" by Dr. Englund
- 9 June (at Bethesda, Captains Kelly, Sphar, Hoeffler & Senechall; CDR Biersner, & Dr. Schmidt), "Proposed Medical Screening Program and background information of expected problems resulting from upcoming physical fitness requirements for personnel over age 40" by Dr. Gray
- 22 June, Occupational Health Program Manager, "NOHIMS" by Dr. Gunderson
- 5 August, Commanding Officer (Captain Kelly, at NHRC), "White blood cell count study" by Dr. Garland
- 19 August, Fleet Health Occupational Program Manager, "Current status of WBCCS" by Dr. Garland
- 22 October, Commanding Officer (Captain Kelly, at NHRC), "Research on Naval Aviators and Divers" by Anne Hoiberg; and "Code 30 Program Review" by Dr. Gunderson
- 2 November, Fleet Health Care Occupational Program Manager (CDR Strong), "Plans to develop a Casualty Care Information System" by Mr. Pugh
- 10 November, Deputy Commanding Officer (Captain Sphar, at NHRC), "Longitudinal Research on Naval Aviators and Divers" by Miss Hoiberg; "White blood cell count study" by Dr. Garland; and "Code 30 Program Review" by Dr. Gunderson
- 29 November, Fleet Occupational Health Program Manager (CDR Truman, at NHRC), "Current Status of white blood cell count study" by Dr. Garland

Naval Regional Medical Clinic, Bremerton, Washington

- 20-22 September, Head, Occupational Medicine (Captain Bollinger, MC/USN), "NOHIMS progress and preparations needed to implement NOHIMS at Bremerton Naval Shipyard" by Mr. Pugh

Naval Training Center, Orlando, Florida

- 11 May, Commanding Officer (Admiral Hartington), "Assessment of Aerobic/Circuit Weight Training for Navy Female Recruits" by LT Marcinik

Line Briefings, cont.

Office of Naval Research (ONR)

- 29 September, ONR Arlington, VA (Dr. Majde), "White Blood Cell Count Study" by Dr. Carland
- 4 December, Naval Research, ONR Branch Office, Pasadena (at NHRC, to all Reservist personnel at the request of their Commanding Officer), "A Demonstration of Body Composition Determination by Underwater Weighing" by Dr. Hodgdon

Recruit Training Command, San Diego

- 1 April, Executive Officer (CDR J. W. Bruckner), Military Training Officer (LCDR E. Wright), and Director, Technical Training (LCDR V. W. Nibbs), "Evaluation of Aerobic/Circuit Weight Training for Navy Recruit Utilization" by LT Marcinik
- 28 May, Commanding Officer (Captain W. A. Wiley) and Executive Officer (CDR J. W. Bruckner), "Results of SPARTEN Program involving RTC Men and Women" by LT Marcinik
- 9 September, Military Training Officer (LCDR E. Young); Director of Technical Training (LCDR V. W. Nibbs), and Division #2 Officer (LT J. Becker), "The Effects of Aerobic/Circuit Weight Training on Shipboard Task Performance: A Research Proposal" by LT Marcinik
- 14 October, Executive Officers (CDR Johnson-Evans and CDR J. W. Bruckner), "Current Research Efforts of the Physical Fitness Program (NHRC) onboard Naval Training Center" by LT Marcinik

Recruit Training Command, Orlando, Florida

- 10 May, Commanding Officer (Captain L. W. Fernald), Executive Officer (CDR Kilpatrick), Director of Technical Training (LT S. Driscoll), and Director of Water Survival & Physical Training (LT Rudro), "Proposed Evaluation of Standard Recruit Physical Training Program at RTC, Orlando" by LT Marcinik
- 10-11 May, Commanding Officer (Captain Fernald), "Evaluation of Physical Training Program at RTC Orlando with briefing and recommendations for change" by Dr. Gray

Service School Command, San Diego

- 27 May, Commanding Officer (Captain M. S. Higgins), "Results of Aerobic/Circuit Weight Training Program involving Service School Command Men and Women" by LT Marcinik

Shore Intermediate Maintenance Activity (SIMA), San Diego

- 15 February, Human Resources Director (LCDR Rhiddlehoover) and Physical Fitness Officer (LT J. McCall), "Development of SPARTEN Training System for Navy Men and Women" by LT Marcinik
- 4 October, Commanding Officer (Captain Scelig) and Human Resources Officer (LCDR Rhiddlehoover), "Aerobic/Circuit Weight Training for Weight Control Purposes (a research proposal)" by LT Marcinik

Submarine Development Group 1, San Diego

- 14 October, Medical Officer (Captain D. Stetson), "Rapid Diagnosis Methods for Shipboard Use" by LCDR Nelson

Submarine Training Facility, San Diego

- 26 August, Command Briefing, "Obesity Research conducted by NHRC" by LT Marcinik



Line Briefings, cont.

USS SAMUEL GOMPERS (AD-37), Naval Station, San Diego

12 April, Commanding Officer (Captain F. Bailey) and Executive Officer (CDR J. Sweatt), "A Proposal to Survey Obesity among Personnel onboard the USS Gompers" by Dr. Hodgdon & LT Marcinik

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## COLLABORATION WITH OTHER RESEARCH FACILITIES

### ENVIRONMENTAL MEDICINE DEPARTMENT

Department personnel have collaborated with Dr. Eugene Gloye of the Office of Naval Research Pasadena Detachment, adapting a system for identifying and describing chemical hazards in the work place (This classification system will be incorporated into a reference table for NOHIMS.), and with the Bioengineering group at the Naval Ocean Systems Center (NOSC) to formulate proposals for automating medical data systems for combat casualty support.

Dr. Garland, of the Occupational Health Program, has coordinated research efforts with Captain George Luiken, Naval Regional Medical Center, San Diego, and the computer systems department of the Naval Weapons Center, China Lake, California, in studying the "Epidemiology of Low White Blood Cell Counts..." at the China Lake Naval Weapons Center.

Drs. Gunderson and Garland have held extensive discussions with Drs. Norman and Robinette of the Naval Research Council Medical Follow-up Agency to assure closer future collaboration on long-term longitudinal studies of naval personnel.



Dr. Garland

Researchers in the Longitudinal Studies and Occupational Health Programs have collaborated with scientists from Yale University, including Dr. Adrian Ostfeld, in providing medical follow-up data on a large sample of naval personnel exposed to nuclear radiation.

Dr. Gunderson and Milan Miller have collaborated with the Defense Manpower Data Center and the Naval Postgraduate School, Monterey, California, in providing death records for the DEERS project and exchanging service history information.

### HEALTH PSYCHOLOGY DEPARTMENT

LCDR Butler met several times with members of the Research Department of the Naval School of Health Sciences, Bethesda, Maryland, providing input to the design of a study on job-related stress among Navy health care professionals. In addition, LCDR Butler has maintained his association with the University of Wisconsin-Oshkosh, regarding the Medical Service Corps officer retention and career development study, and the Psychology Department, University of Houston, Texas, regarding hospital studies. Finally, effective working relationships were established and maintained with both the Department of Psychology and Graduate School of Public Health at San Diego State University which resulted in the placement of several students in a work-study environment.



LCDR Butler

Terry Conway is pursuing graduate studies at the University of Michigan, Ann Arbor, and collaborating on research projects being conducted at the Institute for Social Research. She has participated in a longitudinal study of the psychological and social effects of diazepam (Valium) with Drs. J. R. P. French, Jr., R. D. Caplan, and F. A. Andrews. Additional work was done with Camille B. Wortman and colleagues in designing and pre-testing a study to examine how parents cope with the unexpected loss of a child from "sudden infant death syndrome".



Dr. Nice has continued to provide consultative research services to the family studies group at the Navy Personnel Research and Development Center (NPRDC) and the family practice physicians at Naval Regional Medical Center, Camp Pendleton.

#### ENVIRONMENTAL PHYSIOLOGY DEPARTMENT

Dr. Hodgdon worked with the academic staff of the Department of Physical Education at San Diego State University, assisting in the direction of graduate students in the areas of training response to altitude, adherence to exercise heart rate prescription, and exercise patterns aboard a submarine. In addition, he presented lectures on utilization of computers for data acquisition. Dr. Hodgdon is also collaborating with Dr. Frank White at University of California, San Diego (UCSD) and Mr. Hal Goforth at NOSC to measure production and clearance of lactate in the exercising pig. These efforts are in support of Dr. Gray's IR project.

Lieutenant Marcinik is working with Dr. Dave Robertson's group at NPRDC, assisting in NPRDC work to determine strength and stamina requirements for physically demanding Navy occupational ratings. In January, he participated in the collection of job task analysis information with NPRDC personnel aboard the USS Ranger (CV-61). This work involved deck and engineering ratings. In February, at Naval Air Station, Miramar, these studies were carried out on early warning and fighter squadron personnel. These on-site data collection evaluations have provided a basis for identification of candidate tasks for shipboard simulation.

Dr. Paul Naitoh has worked with Dr. W. P. Colquhoun on the circadian rhythm of oral temperature and its relationship to personality and performance.

LCDR Charles Gray worked with Captain William Jackson (NMPC-6) in coordinating the U.S. Navy's physical readiness and cardiac screening programs. While in Boston, LCDR Gray attended the International Symposium on the Biochemistry of Exercise held June 1-5. He also met with Professor Paul Saltman of UCSD Medical School regarding a proposal to assess effects of trace elements on hematological and physical fitness parameters. In September, he met with personnel of the U.S. Navy Clothing Lab in Natick, Massachusetts, in field testing evaluation in the desert environment.

Dr. David Hord has collaborated with Professor John Hayward and Dr. Robert Thompson of the University of Victoria, Toronto, Canada, in working on a continuing effort concerning vigilance performance under wet/cold conditions.

Lieutenant Marie Wallick is working on an evaluation of environmental, aircraft, and individual factors affecting aviator performance in conjunction with personnel of the Crew Systems Branch, Pacific Missile Test Center, Point Mugu, and Dunlap and Associates Inc. of La Jolla.



#### CLINICAL PSYCHOPHYSIOLOGY DEPARTMENT

Drs. Spinweber and Johnson collaborated with Dr. William C. Dement and Mr. Wesley F. Seidel of the Stanford University School of Medicine on a study comparing the EEG changes associated with use of a long-acting (flurazepam) and a short-acting (triazolam) benzodiazepine sleeping pill (Center Report 82-10).

Dr. Spinweber and Mr. Hilbert collaborated with Dr. Reidun Ursin of the Institute of Physiology, University of Bergen, Norway, and with Dr. Richard Hilderbrand of the Naval Biosciences Laboratory, Oakland, on analysis of data from a study of the effects of the amino acid L-tryptophan on waking and sleep EEGs (Center Report 82-24).

In addition, at the request of the Nursing Continuing Education Program, Naval Hospital, San Diego, Dr. Spinweber was filmed making a presentation on "What Nurses Need to Know About Sleep, Sleep Problems, and Sleeping Pills" for production of an educational video cassette. This cassette has been shown on several occasions as part of the in-service training program at Naval Hospital.



Ray Hilbert

#### BIOLOGICAL SCIENCES DEPARTMENT

A program overview and possible future collaborative studies were discussed during Mr. Edwards' May/July meetings with CDR John Sipple of Naval Biosciences Laboratory, Oakland, California.

In conjunction with two active DD-1498s, LCDR Dennis Nelson met: on 21 October and 17 November with Dr. William Griswold of UCSD Medical School, to work on new methods for estimating antigen-antibody binding from dilution data; on 14 November with Hal Goforth of NOSC for a biochemical consultation on determining serum Glucose-Lactase ratios; and, on 11 November with Dr. Gray and Dr. Koett, of Naval Hospital, on serum indicators of exercise stress.

LCDR Richard Struempfer assisted Drs. W. R. Rasmussen and Frank Borkat of the Bioengineering Branch of NOSC in technical and operational testing of a prototype of a modular clinical laboratory (MODULAB) designed for shipboard use. Collaboration involved installation of MODULAB in the laboratory space of the USS Enterprise (CVN-65), training corpsmen in its use, and providing technical support (i.e., trouble shooting).



HM3 R. Celestino, USN, with MODULAB aboard the USS Enterprise (CVN-65) (Photograph by Frank Borkat, NOSC)

Before his transfer, LCDR Struempfer met with Dr. Rimland of NPRDC to complete a DD-1498 on the "Mineral Levels as Related to Recruit Health and Performance" which investigated the relationship between blood and hair mineral levels of recruits and their performance in recruit training.

## PHYSICAL FITNESS RESEARCH

In response to DOD Directive 1308.1, the United States Navy has released a new instruction OPNAVINST 6110.113, covering health and physical readiness. This Instruction changes the standards for weight control from height/weight tables to a 22% body fat standard for men estimated from neck and abdominal circumferences. In order to determine the possible impact of this change, the Physical Fitness Program of NHRC collected information on a sample of male personnel to determine their compliance with weight control standards based both on height/weight tables and on % body fat.



The effects of various exercise intensity and work/rest cycles on fitness was the objective of this particular SPARTEN\* project.

Height, weight, age, neck, and abdominal circumference measures were collected on a sample of 986 male U.S. Navy personnel; 174 recruits, 309 recruit training staff, 436 auxiliary vessel crew members and 67 submarine crew members.

Research studies conducted in Fiscal Year 1982 in cooperation with the Recruit Training Command, (RTC), San Diego, follow.



Admiral Aut      HM3 Bucci

HM3 Bucci offers RADM W. E. Aut, Commander, Naval Training Center, with a mouthpiece for determination of residual volume.



HM2 Henney

HM2 Henney takes an abdominal circumference measurement on Navy man from RTC.

\*Scientific Program of Aerobic and Resistance Training Exercise in the Navy



Recruits engage in a more intensive running program of SPARTEN's physical conditioning system.

#### RECRUIT TRAINING COMMAND (RTC), SAN DIEGO

In an initial experiment, 2 companies of male Navy recruits were followed during their transit through basic training. Some subjects assigned to Company I participated in an exclusive program of circuit weight training. Company II recruits undertook a combined running and circuit weight training program. Each company was then divided into 4 subgroups varying according to exercise intensity (e.g., 30% IRM or 70% IRM) and work/rest cycle (e.g., 15sec/15sec or 30sec/15sec). In order to compare the effect of these exercise formats, all recruits were required to complete the effect of these exercise formats, all recruits were required to complete an extensive physical fitness evaluation prior to and following the 8-week basic training period.

The primary objective of this project was to identify an optimal physical training program for Navy male recruits. Results of this particular effort will be supplied to CNTT, officials responsible for developing recruit physical training guidelines.



Following 6 weeks of SPARTEN training all members of Recruit Company 045 completed the 6.2 mile "Bluejacket 10K" run sponsored by RTC.



Carrying 50-lb. paint buckets.



Opening/securing + WTD.

# RTC San Diego cont.

Another interaction with RTC this year involved an ongoing evaluation of the SPARTEN physical conditioning system.

In an initial effort, a company of 80 recruits receiving SPARTEN training were asked to perform a series of general shipboard tasks (e.g., opening/securing watertight doors, carrying 50-lb. buckets of paint) prior to and following the 8-week training period. This study sought to determine the effects of strength conditioning on shipboard work performance

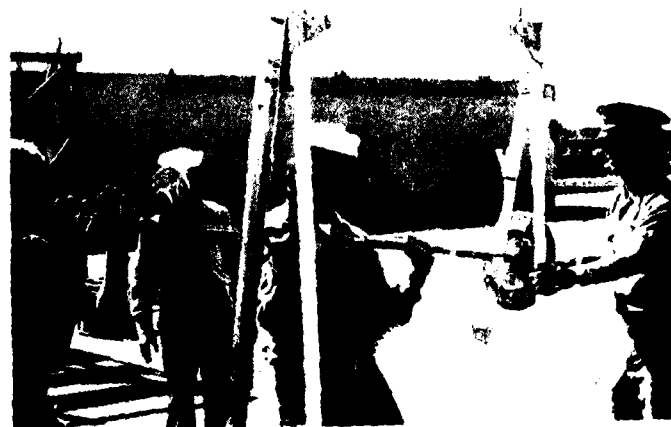
Results obtained from this study will help to identify specific components of fitness contributing to optimal shipboard work performance. Furthermore, a greater understanding of the relationship of physical fitness to job performance and an assessment of the value of occupational strength enhancement programs will be gleaned from these data.



Extricating injured personnel.



Starting P-250 pump.



Simulated bomb lift.

To compare the experimental SPARTEN Program to standard training methods for purposes of developing upper torso strength, a final research project program was carried out this fiscal year. A company of recruits receiving SPARTEN training and a company undergoing standard aerobic/calisthenic conditioning underwent a physical fitness profile prior to and following the 8-week training period. Unlike previous recruits participating in the SPARTEN program, this company exercised on multi-station gyms placed in the Camp Nimitz barracks. This afforded recruits greater access to the machines and eliminated lengthy transit periods to and from the base gymnasium.

Results of this study will measure how well these training systems develop the muscular strength abilities needed to perform shipboard work.



Navy recruits perform circuit weight training exercises on multi-station weight machines located in Camp Nimitz barracks.





SERVICE SCHOOL COMMAND (SSC), SAN DIEGO

During the past year, a contingent of male and female staff personnel from the Service School Command participated in an experimental circuit weight training program. During the 10-week training period, participants engaged in three 40-minute exercise sessions per week. Subjects were instructed to complete 2-3 circuits of 10 exercises on a multi-station gym, exercising at a 15sec/15sec work/rest cycle. The primary objective of this pilot study was to determine the effects of a low-intensity (40% 1RM) quickly paced weight training program on muscular and aerobic fitness parameters.

Results of this project will provide useful knowledge towards assessing the value of this mode of physical conditioning for maintenance of fitness onboard ship.



RTC and SSC men and women participate in circuit weight training pilot study designed for shipboard utilization.

RECRUIT TRAINING COMMAND, ORLANDO, FLORIDA

With a rapidly expanding population of Navy women onboard ship, this project sought to determine the effectiveness of the current conditioning program at RTC Orlando to enhance job-related upper torso strength abilities. A company of Navy female recruits (N=80) undergoing the standard recruit physical conditioning program was contrasted with a company receiving SPARTEN training (N=80) (e.g., circuit weight training/running). The effect of the standard versus SPARTEN Program on muscular strength, muscular endurance, stamina and relative body composition was determined.

Data collected from this study will be used to compare the initial fitness levels of Navy female recruits to Navy male recruits. Additionally, the physiological effects of strength conditioning on Navy men and women can be compared as well as the value of strength conditioning for assisting Navy women to meet occupational strength requirements.

SHORE INTERMEDIATE MAINTENANCE  
ACTIVITY (SIMA), SAN DIEGO

The Commanding Officer of SIMA requested the Physical Fitness Program to design a practical exercise program to replace the command's ineffective weight control program. Utilizing exercising equipment and a running track located at the Naval Station Gymnasium, San Diego, a running/circuit weight training format was designed and implemented. A sample of approximately 40 obese male and female members of SIMA have been participating in the 3x/week program for the past 7 months. The SIMA Command has allocated 30 minutes of Navy time for participation in this weight control program. Hydrostatic weighings conducted at the NHRC laboratory have provided feedback.



A Navy man undergoes hydrostatic weighing for determination of body fat.

COMNAVSURFPAC

A research project was initiated with the goal of designing and evaluating the practical, standardized physical conditioning program for use onboard ship. Due to the variety of exercise equipment currently utilized onboard ship and the

space differences existing among the various classes of Navy vessels, the initial phase of this project will survey equipment, training facilities, utilization rates, and other vital information regarding physical training afloat. Phase two will evaluate a variety of circuit weight training formats for shipboard physical fitness maintenance.



Physical Fitness references: \*

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Correspondence of Plasma and Saliva Cortisone and Testosterone (Abstract)  
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Medicine & Science in Sports Exercise, 1982, 14(2), 174
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Mile Track Run (Abstract)  
Internationnal Journal of Sports Medicine, 1982, 3(1), 61
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and Female Distance Runners (Abstract)  
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- HODGDON, JA; A Hazard, M Berenda, B Roy, WH Phillips & AA Sucec  
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- MARCINIK, EJ; JA HODGDON & RR VICKERS  
Evaluation of Circuit Weight and Aerobic Training Programs in Navy Personnel  
ibid., pp 32-33
- HODGDON, JA 7 EJ MARCINIK  
Estimation of Body Fat Content in Several U.S. Navy Samples  
ibid., pp 40-41
- HODGDON, JA; HW Goforth, NL Campbell & AA Sucec  
Effects of induced Erythrocythemia on VO<sub>2</sub> Max and Running Performance  
ibid., pp 52-53
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New Physical Standards Studies. Navy Times, 13 September 1982
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Pilot Physical Fitness Program Focuses on Needs Aboard Ships. Navy Times, 8  
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\* Names in capital letters are NHRC staff.

## ACADEMIC APPOINTMENTS

Some members of our staff teach in the evening, at local colleges. Several of our senior scientists hold Adjunct Professorships at the local universities. These ties with local universities and colleges serve to keep our researchers up-to-date with the latest academic advances in their fields. Their appointments also speak for the acceptance of many of our staff and their work by academic appointment committees.

### University of California at San Diego

#### School of Medicine:

E. K. Eric Gunderson, Ph.D. - Adjunct Clinical Professor of Psychiatry  
Laverne C. Johnson, Ph.D. - Adjunct Professor, Departments of Psychiatry & Neurosciences  
Michael W. Kalichman, Ph.D. - Postdoctoral Scholar, Department of Neurosciences

#### Revelle College:

Cheryl L. Spinweber, Ph.D. - Visiting Lecturer, Department of Psychology

#### School of Business:

Mark Butler, LCDR MSC USN - Lecturer, Assistant Professor Level

#### Graduate School of Arts & Sciences:

Lawrence A. Palinkas, Ph.D. - Visiting Lecturer (Part-time), Department of Anthropology

### San Diego State University

Mark Butler, LCDR MSC USN - Lecturer, Assistant Professor Level, Department of Psychology, and  
Adjunct Assistant Professor, Graduate School of Public Health  
James Hodgdon, Ph. D. - Department of Physical Education (Thesis Advisor for Graduate Students)  
Laverne C. Johnson, Ph.D. - Lecturer, Professor Level, Department of Psychology  
D. Stephen Nice, Ph.D. - Adjunct Member of Academic Faculty, Graduate School of Public Health  
William Pugh - Lecturer, Statistics & Business Management, Business Department

### California School of Professional Psychology, San Diego

D. Stephen Nice, Ph.D. - Adjunct Member of Academic Faculty

### Chapman College, San Diego

Duell E. Wood, CDR MSC USN - Assistant Professor in Health Sciences

### Mesa College, San Diego

Carl Englund, Ph.D. - Professor of Psychology

### National University, San Diego

Carl Englund, Ph.D. - Adjunct Professor (Psychology)

## 1982 SCIENTIFIC COLLOQUIUMS

The monthly Scientific Colloquium continues to be a highlight of the scientific activities at NHRC. The Colloquia provide an opportunity for interaction among the total NHRC staff as well as scientific presentations by speakers outside the Center and Navy. In addition, the Annual Ardie Lubin Memorial Lecture, initiated in 1977, provides us an opportunity to honor Ardie as a scientist and to remember him as a valued colleague and friend.

January 21: "Sleep Deprivation & Rhythms"

Daniel Kripke, M.D., Assistant  
Professor of Psychiatry; and  
Daniel Mullaney, M.S.  
Department of Psychiatry  
University of California at San  
Diego, La Jolla



Dr. Kripke Mr. Mullaney

February 18: "A Potpourri of Clinical Infectious Disease Research at  
U.S.NAMRU, Cairo, Egypt"

Michael E. Kilpatrick, Commander, MSC, USN  
Biological Sciences Department, NHRC

March 18: "Cost Benefit Analysis of Prevention Programs: An  
Economist's Viewpoint"

Professor Rob Seidman  
School of Public Health, San Diego State University

April 22: "Diagnostic Virology: An Overview"

Irving Phillips  
Biological Sciences Department, NHRC

May 25: "Some Human Factor in Command-Control"

John Silva, Ph.D.  
Man Systems Interaction Division, Naval Ocean Center Systems,  
San Diego

June 24: "Stress in Marine Corps Basic Training"

Ross R. Vickers, Ph.D.  
Environmental Physiology Department, NHRC



Scientific Colloquiums, cont.

August 12: Ardie Lubin Memorial Lecture  
"Adversity, Social Support and Health"

Irwin G. Sarason, Ph.D., Professor of Psychology  
University of Washington, Seattle, Washington

13 August Workshops:

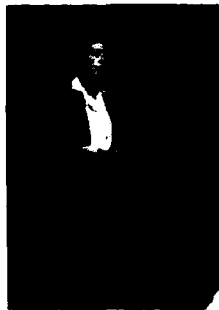
"Use of Modeling in Adaptative Coping Responses"  
and  
"Stress, Anxiety and Cognitive Interference"



September 23: "Man at High Pressure: A Review of the Past, A Look at  
the Present, and a Projection into the Future"

Thomas E. Berghage, Commander, MSC, USN  
Head, Environmental Physiology Department, NHRC

November 29: "Epidemiological Characteristics of the Association between  
Asbestos Exposure and Chest Radiography in Shipyard Workers"



Hodda Guirgis, Ph.D.  
Associate Professor  
California College of Medicine  
Department of Community & Environmental  
Medicine, University of California  
Irvine, California

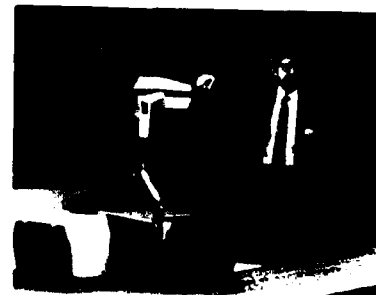
December 2: "Circadian Rhythms, Personality and Performance"

Peter Colquhoun, Ph.D.  
University of Sussex  
Brighton, England

Workshops:

December 1 - "Performance Testings  
in Sustained Ops"

December 3 - "Work/Rest Cycle and  
Shift Work"



# Other Activities

January-February-March



HM3 Sandra Weber  
Administrative Services  
Department

April-May-June



HM3 Rebecca Johnson  
Environmental Physiology  
Department

July-August-September



HM1 Renato Reyles  
Biological Sciences  
Department

#### Letter of Commendation

On 14 June 1982, the San Diego Police Department awarded the "Commanding Officer's Citation" to Reserve Officer Richard E. Struempfer, No. 9846, and two other Reservists for their observation of a fire on the second floor of the Armed Services YMCA, 500 West Broadway, San Diego, of which the YMCA staff was not aware of. They are commended for their observation, alertness, initiative, and quick action for preventing the fire from spreading and the possibilities of injuries or death to the tenants.

#### Letter of Appreciation

Lieutenant R. Blake Chaffee, MSC, USN, of the Environmental Medicine Department, received a Letter of Appreciation dated 13 May from the Staff Chaplain, Chief of Naval Technical Training, NAS Memphis, Tennessee, for successfully completing a "Getting it Together" workshop at Recruit Training Command, San Diego, during 4-6 May. "...Because of the strong support exhibited by LT Chaffee, the full pilot program was able to commence on 1 June as originally desired by the Chief of Naval Technical Training."

#### Augmentation(s)

Lieutenant R. Blake Chaffee, MSC, USN, in August was selected for augmentation into the Regular Navy.

#### Promotions and Advancements to their present rank were:

HMCS Collins C. Milhouse, USN  
HMC Manuel C. Abroguena, USN  
HM1 Oswaldo Quiaot, USN  
HM2 Robert M. Henney, USN  
HM2 Rebecca Johnson, USN  
HM2 Richard Canavaciol, USN  
HM3 James R. Gillet, USN



HM1 Quiaot



+HM2 Johnson HM2+Canavaciol HM3 Gillet

\* Includes presently or newly elected offices in national/state/local/medical, etc., societies.



#### Navy Achievement Medal

On 18 February, BMC Dennis R. Schieffer, USN, received the Navy Achievement Medal for professional achievement in the superior performance of his duties while serving as Command Chief Petty Officer, from November 1981 to February 1982.



On 2 December, LCDR Dennis P. Nelson, MSC, USN, received the Navy Achievement Medal, forwarded from the Commanding Officer, Naval Regional Medical Center, San Diego, for presentation.



On 25 September, LT Edward J. Marcinik, MSC, USN, received the Navy Achievement Medal for outstanding achievement in the superior performance of his duties as a Physiologist in the field of biomedical research during the period October 1979 through April 1982.

On 11 November, LT Marcinik became an Active Member of the Association of Military Surgeons of the United States.

#### SPORTS AWARDS

Lieutenant Marcinik: On 26 February, was presented the "Iron Man Physical Fitness Award" by Captain B. A. Wiley, USN, Commanding Officer, Recruit Training Command, San Diego.

On 26 July, he was presented the "NTC Iron Man Award" by RADM W. E. Aut, USN, Commander, Naval Training Center, San Diego.



Running awards for LT Marcinik include:

- 15 February, NTC Mid-Winter Cross Country Meet Champion (6.5 miles in 37:02)
- 1 March to 15 April, NTC Fitness Award (500 miles during a 10-week period)
- 25 July, 3rd Place Trophy (30-39 age division), San Diego Jack Murphy Stadium
- 1 September, NTC Cross Country Champion (6.6 mile run in 35:43), and received the NTC's 1000 Mile Club Runner's Award
- 20 October, 1st Place Trophy, Combined Federal Campaign (CFC) 10K Winner (sponsored by NAVADCOM, NTC)
- 23 October, 3rd Place Medal, El Cajon 10K
- 30 October, 5th Place Medal, San Diego Symphony 10K (Balboa Park)
- 7 November, 3rd Place Medal, CFC 10K (NAS North Island)

On 8 May, LT Marcinik served as the Assistant Director of the Blue-Jacket 10K held at Mission Bay Park which raised over \$6000 for the Navy Relief Society of San Diego. In addition he served as the athletic coach for the RTC's track team that placed first in this race.

Coached by LT Marcinik, NTC's 10K Track Team, took 1st Place at the "Swiftest Business 10K" sponsored by the General Dynamics Corp. This marked the fourth time the 10K team has brought home the gold for the Navy in five outings.



### Offices

CDR Thomas E. Berghage, MSC, USN, Head of the Environmental Physiology Department, was elected to the Board of Directors of the Undersea Medical Society, and appointed to the Advisory Board of the University of Southern California Undersea Laboratory Program.

Commander Michael E. Kilpatrick, MC, USN, of the Biological Sciences Department, was selected as the first Officer-in-Charge of the newly established Naval Medical Research Institute Detachment in Lima, Peru, which will commence operations on or about the first of January 1983.

### Retirements (Military & Civilian)

CDR Warren R. Sanborn, MSC, USN, of the Biological Sciences Department, retired on 30 June.

CDR David Hall, MSC, USN of the Environmental Department, NTC Office, retired on 31 October.



Mr. Gerald L. Bridge, who worked in our Administrative Office, retired on 19 March.



Dorothy Benson retired on May 28. She originally worked for the Center for Prisoner of War Studies. After its disestablishment she transferred to the Health Psychology Department.



### FOR THE CIVILIANS...

At the January 21st Scientific Colloquium, Frances Jackson and Dorothy Benson, both from the Health Psychology Department, received Superior Performance Awards.



### Letters of Appreciation

Mr. Earl Edwards, Head of the Biological Sciences Department, received a Letter of Appreciation from the American Public Health Association, Executive Director, for his contribution to a new book published in the Fall of 1981.

Ms Rena Paczoqski and Mrs. Victoria Mosely, Computer Aides in the Research Support Department, at the September Scientific Colloquium, received a Letter of Appreciation for providing high quality, error-free results to a large volume of keypunch work: NOHIMS demonstration and completion of outpatient data collection to construct screen displays on the PDP 1124, create extensive text data tables on the TSR-80 word processor, and keypunching over 9000 computer cards, in a timely manner.



Anne Hoiberg:

- \* received the Major Louis Livingston Seaman Prize on 28 October, given by the Association of Military Surgeons of the United States, for the most notable paper "Cancer Among Naval Personnel: Occupational Comparisons" published during 1981 by *Military Medicine* (August, Vol. 146, No. 8, pp 556-561, NHRC Report No. 79-57);
- \* was Associate Chairperson of the Inter-University Seminar on Armed Forces and Society;
- \* was Division 19 Representative "Women in Psychology" of the American Psychological Association (APA)
- \* was Chairperson, Ad Hoc Committee on Women, Ethnic Minorities and Equal Opportunity for Division 19, APA
- \* was the representative for Women from NHRC and NPRDC of the Women's Advisory Committee, Naval Ocean Systems Center (NOSC);
- \* on 22 June received the Outstanding Toastmaster for 1981 from the NOSC Undersea Toastmasters.

Mary Aldous, Librarian, was elected co-chairman of the Federal Library Committee of the Medical Library Association at the National Meeting in June. She is one of the initial members of the newly formed San Diego County Federal Medical Libraries group whose purpose is to establish direct routes of cooperation to expand each library's service to its own patrons and to sponsor local training programs. Mrs. Aldous has been directly responsible for planning an advanced Medline training seminar in San Diego and, hosted a three-day On-Line Library Catalog training class for FEDNET, Library of Congress, at NHRC. She has also submitted the Library's journal holdings list to several medical union lists which will aid in obtaining needed copies of articles for smaller fees to benefit NHRC researchers.

1982 VISITORS\*

(Office/Person visited)

JANUARY

- 4 Mark Sebrechts (CO)
- 11 Patrick Sebrechts (CO)
- 12 Dr. Max Moody, Welcome Research, Triangle Park, NC (Mr. Edwards)
- 20 Upjohn Representatives: Dr. Robert Purpuara from Kalamazoo, Michigan; Mr. Don Mahan, San Francisco, California, & Mr. Warren Smith, Newport Beach, California (Dr. Johnson)

FEBRUARY

- 2 CDR W. Maynard, MC, USN, Naval Regional Medical Center (NRMC), San Diego (LCDR Butler)
- 5 Captain B. Blaze, BuMed MilSealTransp (OCO)
- 8-10 CDR Paul Bruder, MSC, USN, Naval School of Health Sciences (SHS), Bethesda, Maryland (Command)
- 11 LT Kay, Oakland, California (CO)
- 17 CDR Furr, Office of Naval Technology, Arlington, Virginia (OCO)
- 17 Captain Carter, Chief of Staff, Chief, Naval Education & Training (CNET), (SPARTEN Barracks, Recruit Training Comand (RTC), San Diego)
- 17 Dr. Barbara Kerlin, MITRE Corp., McLean, Virginia (Dr. Gunderson)
- 17 Dr. R. Cohen, Occupational Health, NRMC San Diego (Dr. Nice & W. Pugh)

MARCH

- 2-5 Captain Carles Bollinger, MC, USN, Chief of Occupational Medical, NRMC Bremerton, Washington (W. Pugh & Dr. Gunderson)
- 4 Representatives from the Department of Public Health, Houston, Texas (re NOHIMS, W. Pugh), Dr. Barbara Craven, Houston County Health Department (Dr. Gunderson)
- 8 CDR P. Bruder, NSHS Bethesda (LCDR Butler)
- 16 Paul O. Davis, President, Institute of Human Performance, Fairfax, Virginia (LT Marcinek & Dr. Hodgdon)
- 19 Dr. E. G. Lucas, Senior Employment Medical Advisor (Mental Health) & Dr. C. J. McKay, Senior Psychologist, Health & Safety Executive, United Kingdom (Dr. Gunderson)
- 26 Dr. Regan, Navy Personnel Research & Development Center (NPRDC), San Diego (OCO)
- 29 Nora Martinez, Acting Personnel Officer, NRMC San Diego (OCO)

APRIL

- 9 Captain Ferrier, Naval Shipyard, Oakland, California (re NOHIMS, W. Pugh)
- 13 Dr. W. Rasmussen, Bioengineering Branch, Naval Ocean Systems Center (NOSC), San Diego (CO)
- 15 LCDR D. Kelley, Aviation Physiologist, Naval Air Station (NAS), Miramar, Calif. (LT Marcinek)
- 26 Dr. W. Maynard, Department of Psychiatry, NRMC San Diego (Dr. Gunderson)
- 26/29 Dr. David Grauman, National Center Institute, Washington, DC (Dr. Gunderson & Dr. Garland)
- 28 CDR Biersner, Naval Medical Research & Development Command (NMRDC), Bethesda, Maryland (Command)
- 28 Captain R. Watten (Ret.), Head, Gorgas Research Institute, Panama (CDR Kilpatrick)

MAY

- 7 Health Department Representatives from Galveston, Texas (re NOHIMS, W. Pugh)
- 7 CDR R. Hooper, Head, Environmental Preventive Medicine Unit (EPMU) -5 and LCDR D. Convill, EPMU-5 San Diego (CDR Kilpatrick)
- 12 CDR R. R. Hooper, MC, USN, Commanding Officer, EPMU-6, Pearl Harbor, Hawaii (Dr. Gunderson)
- 15 Dr. A. Lau, Research Psychologist, NPRDC San Diego (Miss Hoiberg)
- 19 Drs. C. Pavett & Lau, NPRDC San Diego (Miss Hoiberg)

JUNE

- 1 Dr. Barbara Aveli, Naval Clothing Laboratory, Natick, Massachusetts (Dr. Hodgdon)
- 1 Dr. Larry R. James, Georgia Institute of Technology (LCDR Butler)
- 6 Dr. Michael Ziegler, UCSD Medical School, University Hospital, San Diego (LT Wallick)
- 14 Dr. A. Forrey, NMRDC Bethesda (Dr. Gunderson)
- 16 Captain K. Soreson, MC, USN, Senior Medical Officer, NRMC Branch Clinic, Marine Corps Recruit Depot, San Diego (Mr. Edwards)

\* Any omissions are purely unintentional.



CAPT Lang

RADM Elliott



LCDR Glover

LCDR White

- 21 RADM R. C. Elliott, MC, USN, Inspector General, Medical; LCDR W. P. Glover, MSC, USN, Assistant to the Inspector General, Medical; & HMCM J. L. Jackson, USN, Administrative Assistant to the Inspector General, & LCDR J. D. Ford, MSC, USN, NMRDC Representative



HMCM Jackson\*

HMCS Milhouse



Janie Banks

LCDR Ford

Gloria Heck

(\*HMCM Jackson was stationed at NHRC from 4 October 1974 to 14 October 1977)

- 22 CDR P. Bruder, NSHS, Bethesda (LCDR Butler)

#### JULY

- 1 Dr. John Sipple, Naval Blood Lab, Oakland, California (Mr. Edwards)  
 1 Dr. John R. Bruni, Institute of Behavioral Research, Texas Christian University, Fort Worth, Texas (LCDR Butler)  
 7 Patricia J. Bowles, Consolidated Civilian Personnel Office, San Diego (Command briefing on travel regulations)  
 23 Colonel Russell, AF, R&D Vet (Chief Scientist & Dr. Gray)  
 23 Colonel Bronson & Major Comaratto, Marine Corps Liaison Office, NOSC, San Diego (OCO)  
 26 RADM W. E. Aut, USN, Commander, Naval Training Center, San Diego (LT Marcinik & Dr. Hodgdon)  
 27 Captain W. M. Houk, MC, USN, Commanding Officer, Naval Aerospace Medical Research Laboratory, Pensacola, Florida (OCO, LT Marcinik & Dr. Hodgdon)

#### AUGUST

- 4 Dr. Saltman (OCO & Dr. Gray)  
 12 Marge Royle, Research Psychologist, NPRDC (A. Hoiberg)  
 16 Captain P. Fitzgerald, Research Physiologist, U.S. Army Research Institute of Environmental Medicine, Natick, Massachusetts (LT Marcinik & Dr. Hodgdon)  
 16-20 Dr. Manny Radomski & Dr. Doug Pearce, Defence & Civil Institute of Environmental Medicine, Downsview, Ontario (Command)  
 17 LCDR S. Forman, Naval Environmental Health Center, Norfolk, Virginia (re White Blood Cell Count Study, Dr. Garland)  
 18-20 Jean-Louis Belard, Medecin Chef, French MOD/DRET, French Army (OCO & Environmental Physiology Department)

#### SEPTEMBER

- 10 Technical Director, NPRDC, San Diego (OCO)  
 13-14 LCDR S. Forman; Jim Crawl, Head, Hazardous Materials Information System; Nancy Craft, Occupational Health Nurse, Naval Environmental Health Center (NEHC), Norfolk, Virginia (W. Pugh)  
 14 Captain W. Jackson, Director, Code 6-H & CDR A. Whitney, Code 6-H, Naval Military Personnel Command (NMPC), Washington, DC (Dr. Hodgdon)  
 17 LCDR S. Forman, NHEC, Norfolk, VA (Dr. Gunderson)  
 17 Captain Martin, NMPC (6-H), Washington, DC (LT Marcinik)  
 17 C. Gillen, UCSD, San Diego (OCO)

# OCTOBER

- 5 Mr. Eric Tupper, Member of the British Admiralty, England (CO, Environmental Physiology Dept.)
- 5-6 Captain J. F. Kelly, MC, USN, Commanding Officer, Naval Medical Research and Development Command, Bethesda, MD

Captain Kelly giving a command briefing to NHRC personnel on his visit.



- 7 CDR Koett, Naval Hospital, San Diego (LCDR Nelson)
- 20 RADM P. F. McCarthy, Commander Carrier Group 1, Naval Air Station, North Island, San Diego (Dr. Hodgdon)
- 25 Dr. Chris Gillen, Department of Psychiatry, UCSD, San Diego (Dr. Spinweber)

# NOVEMBER

- 2 CDR Johnson-Evans, Executive Officer, Recruit Training Command, San Diego (SPARTEN Barracks)
- 4 Drs. Chris Alsten & Thomas Jackson, Medical Science Institute (Dr. Spinweber & Dr. Johnson)
- 4 Captain Gardella, Commanding Officer, Recruit Training Command, San Diego (SPARTEN Barracks)
- 9-10 Captain R. Sphar, MC, USN, Deputy Commanding Officer, NMRDC, Bethesda (OCO)
- 9 Dr. W. Griswold (LCDR Nelson)
- 12 Prof. Jack Morris, University of San Diego (Dr. Johnson)
- 12 RADM Flatley, Commanding Officer, Naval Training Center, Great Lakes, Illinois (SPARTEN Barracks)
- 15 LT Reyes, USN, Officer in Charge, Personnel Support Detachment, Point Loma, San Diego (OCO)
- 15-16 BGEM J. H. Hopkins, USMC, Office of the Director, Development Center Marine Corps, Development & Education Command, Quantico, Virginia (OCO)
- 17 RADM Aut, Commanding Officer, Naval Training Center, San Diego (SPARTEN Barracks)
- 17 Captain J. R. Dennis, USN, Commanding Officer, USS Dubuque (LPD-8) (Dr. Hodgdon)
- 17 LCDR S. Bolshazy, USN, COMNAVSURFPAC (LCDR Nelson)
- 18 A. E. "Ash" Hayes, Director of Sports Administration, The President's Council on Physical Fitness, Washington, DC (Dr. Hodgdon & LT Marcinik)
- 18 RADM J. B. Wilkinson, USN, Commander, Pacific Missile Test Center, Point Mugo  
RADM S. Flatley, Commander, Naval Training Center, Great Lakes  
RADM W. F. Aut, USN, Commander, Naval Training Center, San Diego  
Captain J. K. Gardella, USN, Commanding Officer, Recruit Training Command, San Diego (LT Marcinik, SPARTEN Recruit Physical Training, Camp Nimitz Barracks)
- 22 CDR P. A. Truman, MSC, USN, Fleet Occupational Health Program Manager, NMRDC, Bethesda
- 23 CDR W. P. Carney, MSC, USN, Infectious Disease Program Manager, NMRDC, Bethesda (LCDR Nelson)
- 30 Captain Carr, Commanding Officer, Naval Hospital, San Diego (CO)

# DECEMBER

- 2 Dr. Peter Colquhoun, Laboratory of Experimental Psychology, University of Sussex, Brighton, Sussex, United Kingdom (Command)
- 8 Colonel Mattingly, USMC, Assistant Chief of Staff, G-3, Marine Corps Recruit Depot, San Diego (Dr. Hodgdon)
- 8 RADM Austin, Chief of Naval Technical Training, Middleton, Tennessee (SPARTEN training site, Camp Nimitz Barracks, LT Marcinik)
- 9 W. J. Novick, Jr., Ph.D., Director of BioSciences, Hoechst-Roussel Pharmaceuticals, Somerville, New Jersey (CDR Kilpatrick)
- 15 VADM Sagerholm, Chief, Naval Education & Training, Pensacola, Florida (SPARTEN training site, Camp Nimitz Barracks, LT Marcinik)

#### ACKNOWLEDGEMENTS

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Ann Clay and Berlinda Lopez for proofreading assistance.



Brenda Larry

**END**

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